

4



SEQUENCE LISTING

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<120> RNA Detection Assays

<130> FORS-06666

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<141> 2002-02-26

<160> 4004

<170> PatentIn version 3.1

<210> 1

<211> 834

<212> PRT

<213> Thermus aquaticus

<400> 1

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Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly
20 25 30

Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala
35 40 45

Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala Val Phe
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu
65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg
130 135 140

Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His Pro Glu
 145 150 155 160

Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu Lys Leu
 195 200 205

Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu Glu Asp
 225 230 235 240

Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu Pro Leu
 245 250 255

Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly Leu Arg
 260 265 270

Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly
 275 280 285

Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro Pro Pro
 290 295 300

Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro Met Trp
 305 310 315 320

Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val His Arg
 325 330 335

Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly
 340 345 350

Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp
 355 360 365

Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro
 370 375 380

Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp
 385 390 395 400

Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg
 405 410 415
 Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr
 420 425 430
 His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala
 435 440 445
 Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu
 450 455 460
 Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala
 465 470 475 480
 Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu
 485 490 495
 Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly
 500 505 510
 Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His
 515 520 525
 Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys
 530 535 540
 Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly
 545 550 555 560
 Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu
 565 570 575
 Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu
 580 585 590
 Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu
 595 600 605
 Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu
 610 615 620
 Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile
 625 630 635 640
 His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val

<223> Synthetic

<400> 2

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

| | | |
|-----------------------------------------------------------------|-----|-----|
| 485 | 490 | 495 |
| Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys | | |
| 500 | 505 | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | |
| 515 | 520 | 525 |
| Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn | | |
| 530 | 535 | 540 |
| Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg | | |
| 545 | 550 | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | |
| 565 | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | |
| 580 | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val | | |
| 595 | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | |
| 610 | 615 | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His | | |
| 625 | 630 | 635 |
| Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp | | |
| 645 | 650 | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr | | |
| 660 | 665 | 670 |
| Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu | | |
| 675 | 680 | 685 |
| Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val | | |
| 690 | 695 | 700 |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr | | |
| 705 | 710 | 715 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala | | |
| 725 | 730 | 735 |

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val
785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Gly His His His His His His
835

<210> 3

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 3

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp
 595 600 605

Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg
 625 630 635 640

Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly
 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg
 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
 725 730 735

Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu
 770 775 780

Leu Gln Val His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala
 785 790 795 800

Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro
 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu
 820 825 830

Ser Ala Lys Glu His His His His His His
835 840

<210> 4

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 4

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
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Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg

| | | |
|----------------------------------------|----------------------------------------|------------------------|
| 165 | 170 | 175 |
| Pro Asp Gln Trp 180 | Ala Asp Tyr Arg 185 | Leu Thr Gly Asp 190 |
| Asn Leu Pro Gly Val Lys Gly 195 | Ile Gly Glu Lys Thr 200 | Ala Arg Lys Leu 205 |
| Leu Glu Glu Trp Gly Ser 210 | Leu Glu Ala Leu Leu Lys 215 | Asn Leu Asp Arg 220 |
| Leu Lys Pro Ala Ile Arg 225 | Glu Lys Ile Leu Ala His Met 230 | Asp Asp Leu 240 |
| Lys Leu Ser Trp Asp 245 | Leu Ala Lys Val Arg Thr Asp 250 | Leu Pro Leu Glu 255 |
| Val Asp Phe Ala Lys Arg Arg 260 | Glu Pro Asp Arg Glu Arg 265 | Leu Arg Ala 270 |
| Phe Leu Glu Arg Leu Glu Phe 275 | Gly Ser Leu Leu His 280 | Glu Phe Gly Leu 285 |
| Leu Glu Ser Pro Lys Ala 290 | Leu Glu Glu Ala Pro Trp 295 | Pro Pro Pro Glu 300 |
| Gly Ala Phe Val Gly Phe Val 305 | Leu Ser Arg Lys Glu Pro Met Trp 310 | Ala 320 |
| Asp Leu Leu Ala Leu Ala Ala Ala 325 | Arg Gly Gly Arg Val His Arg 330 | Ala 335 |
| Ala Asp Pro Leu Ala Gly Leu Lys 340 | Asp Leu Lys Glu Val Arg Gly 345 | Leu 350 |
| Leu Ala Lys Asp Leu Ala Val 355 | Leu Ala Ser Arg Glu Gly 360 | Leu Asp Leu 365 |
| Val Pro Gly Asp Asp Pro Met 370 | Leu Leu Ala Tyr Leu Leu Asp 375 | Pro Ser 380 |
| Asn Thr Thr Pro Glu Gly Val 385 | Ala Arg Arg Tyr Gly Gly Glu Trp 390 | Thr 400 |
| Glu Asp Ala Ala His Arg Ala 405 | Leu Leu Ser Glu Arg Leu His 410 | Arg Asn 415 |

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu
 450 455 460

Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 5

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 5

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

| | | | | | | | |
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| 1 | | 5 | | 10 | | 15 | |
| Leu | Val | Asp | Gly | His | His | Leu | Ala |
| | | 20 | | | | | 25 |
| | | | | | | | 30 |
| Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu |
| | 35 | | | | | 40 | |
| | | | | | | | 45 |
| Ala | Lys | Ser | Leu | Leu | Lys | Ala | Leu |
| | 50 | | | | | 55 | |
| | | | | | | | 60 |
| Val | Val | Phe | Asp | Ala | Lys | Ala | Pro |
| | 65 | | | | 70 | | |
| | | | | | | | 75 |
| Gly | Tyr | Lys | Ala | Gly | Arg | Ala | Pro |
| | | | 85 | | | | 90 |
| | | | | | | | 95 |
| Leu | Ala | Leu | Ile | Lys | Glu | Leu | Val |
| | | 100 | | | | | 105 |
| | | | | | | | 110 |
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp |
| | | 115 | | | | | 120 |
| | | | | | | | 125 |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu |
| | 130 | | | | | 135 | |
| | | | | | | | 140 |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp |
| | 145 | | | | 150 | | |
| | | | | | | | 155 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp |
| | | | 165 | | | | 170 |
| | | | | | | | 175 |
| Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg |
| | | 180 | | | | | 185 |
| | | | | | | | 190 |
| Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile |
| | | 195 | | | | | 200 |
| | | | | | | | 205 |
| Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu |
| | 210 | | | | | 215 | |
| | | | | | | | 220 |
| Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys |
| | 225 | | | | 230 | | |
| | | | | | | | 235 |
| | | | | | | | 240 |
| Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys |
| | | | 245 | | | | |
| | | | | | | | 250 |
| | | | | | | | 255 |

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
260 265 270
Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
275 280 285
Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
290 295 300
Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
305 310 315 320
Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
325 330 335
Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
340 345 350
Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
355 360 365
Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
370 375 380
Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
385 390 395 400
Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
405 410 415
Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430
Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
435 440 445
Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
450 455 460
Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480
His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495
Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540
 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560
 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575
 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590
 Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val
 595 600 605
 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620
 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His
 625 630 635 640
 Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys

| | | |
|-----------------------------------------------------------------|-----|---------|
| 755 | 760 | 765 |
| Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val | | |
| 770 | 775 | 780 |
| His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val | | |
| 785 | 790 | 795 800 |
| Ala Ala Leu Ala Lys Glu Ala Met Gly Lys Ala Tyr Pro Leu Ala Val | | |
| 805 | 810 | 815 |
| Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys | | |
| 820 | 825 | 830 |
| Gly His His His His His His | | |
| 835 | | |
| <210> 6 | | |
| <211> 839 | | |
| <212> PRT | | |
| <213> Artificial Sequence | | |
| <220> | | |
| <223> Synthetic | | |
| <400> 6 | | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | | |
| 1 5 10 15 | | |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | | |
| 20 25 30 | | |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | | |
| 35 40 45 | | |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | | |
| 50 55 60 | | |
| Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly | | |
| 65 70 75 80 | | |
| Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln | | |
| 85 90 95 | | |

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

| 595 | | | | | 600 | | | | | 605 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser |
| 610 | | | | | | 615 | | | | | 620 | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr |
| 705 | | | | | | 710 | | | | | 715 | | | | 720 |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | | 790 | | | | | 795 | | | | 800 |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Glu | His | His | His | His | His | His | | | | | | | | | |
| | | | 835 | | | | | | | | | | | | |

<210> 7

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 7

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr

| 435 | | | | | 440 | | | | | 445 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Val | Arg | Arg | Asp | Val | Ala | Tyr | Leu | Gln | Ala | Leu | Ser | Leu | Glu | Leu |
| 450 | | | | | | 455 | | | | | 460 | | | | |
| Ala | Glu | Glu | Ile | Arg | Arg | Leu | Glu | Glu | Glu | Val | Phe | Arg | Leu | Ala | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe |
| | | | | 485 | | | | | 490 | | | | | 495 | |
| Asp | Glu | Leu | Arg | Leu | Pro | Ala | Leu | Gly | Lys | Thr | Gln | Lys | Thr | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ile | Val | Glu | Lys | Ile | Leu | Gln | His | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Asn |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Thr | Tyr | Val | Asp | Pro | Leu | Pro | Ser | Leu | Val | His | Pro | Arg | Thr | Gly | Arg |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu |
| | | 675 | | | | | 680 | | | | | 685 | | | |

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 8

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 8

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu

| 275 | | | | | 280 | | | | | 285 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu |
| 290 | | | | | | 295 | | | | | 300 | | | | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Arg | Gly | Gly | Arg | Val | His | Arg | Ala |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Glu | Pro | Tyr | Lys | Ala | Leu | Arg | Asp | Leu | Lys | Glu | Ala | Arg | Gly | Leu |
| | | | 340 | | | | | 345 | | | | | | 350 | |
| Leu | Ala | Lys | Asp | Leu | Ser | Val | Leu | Ala | Leu | Arg | Glu | Gly | Leu | Gly | Leu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Pro | Pro | Gly | Asp | Asp | Pro | Met | Leu | Leu | Ala | Tyr | Leu | Leu | Asp | Pro | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Asn | Thr | Thr | Pro | Glu | Gly | Val | Ala | Arg | Arg | Tyr | Gly | Gly | Glu | Trp | Thr |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Glu | Asp | Ala | Ala | His | Arg | Ala | Leu | Leu | Ser | Glu | Arg | Leu | His | Arg | Asn |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Lys | Leu | Leu | Trp | Leu | Tyr | His |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Val | Glu | Lys | Pro | Leu | Ser | Arg | Val | Leu | Ala | His | Met | Glu | Ala | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Val | Arg | Arg | Asp | Val | Ala | Tyr | Leu | Gln | Ala | Leu | Ser | Leu | Glu | Leu |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ala | Glu | Glu | Ile | Arg | Arg | Leu | Glu | Glu | Glu | Val | Phe | Arg | Leu | Ala | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Asp | Glu | Leu | Arg | Leu | Pro | Ala | Leu | Gly | Lys | Thr | Gln | Lys | Thr | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 9

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 9

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys

| | | | | |
|-----|-----|-----|-----|-----|
| 115 | | 120 | | 125 |
| Lys | Ala | Glu | Lys | Glu |
| 130 | | | | |
| | | Gly | Tyr | Glu |
| | | 135 | | |
| | | | Val | Arg |
| | | | Ile | Leu |
| | | | | 140 |
| | | | Thr | Ala |
| | | | Asp | Lys |
| | | | | |
| Asp | Leu | Tyr | Gln | Leu |
| 145 | | | | |
| | | | Leu | Ser |
| | | | 150 | |
| | | | | Asp |
| | | | Arg | Ile |
| | | | | 155 |
| | | | His | Val |
| | | | Leu | His |
| | | | Pro | Glu |
| | | | | 160 |
| | | | | |
| Gly | Tyr | Leu | Ile | Thr |
| | | | | 165 |
| | | | Pro | Ala |
| | | | Trp | Leu |
| | | | | 170 |
| | | | Trp | Glu |
| | | | Lys | Tyr |
| | | | Gly | Leu |
| | | | | 175 |
| | | | | |
| Pro | Asp | Gln | Trp | Ala |
| | | | | 180 |
| | | | Asp | Tyr |
| | | | Arg | Ala |
| | | | | 185 |
| | | | Leu | Thr |
| | | | Gly | Asp |
| | | | | 190 |
| | | | | |
| Asn | Leu | Pro | Gly | Val |
| | | | | 195 |
| | | | Lys | Gly |
| | | | | 200 |
| | | | Ile | Gly |
| | | | Glu | Lys |
| | | | Thr | Ala |
| | | | | 205 |
| | | | Arg | Lys |
| | | | Leu | |
| | | | | |
| Leu | Glu | Glu | Trp | Gly |
| 210 | | | | |
| | | | Ser | Leu |
| | | | | 215 |
| | | | Glu | Ala |
| | | | Leu | Leu |
| | | | | 220 |
| | | | Lys | Asn |
| | | | Leu | Asp |
| | | | | Arg |
| | | | | |
| Leu | Lys | Pro | Ala | Ile |
| 225 | | | | |
| | | | Arg | Glu |
| | | | | 230 |
| | | | Lys | Ile |
| | | | Leu | Ala |
| | | | | 235 |
| | | | His | Met |
| | | | Asp | Asp |
| | | | | Leu |
| | | | | 240 |
| | | | | |
| Lys | Leu | Ser | Trp | Asp |
| | | | | 245 |
| | | | Leu | Ala |
| | | | Lys | Val |
| | | | | 250 |
| | | | Arg | Thr |
| | | | Asp | Leu |
| | | | | 255 |
| | | | Pro | Leu |
| | | | | Glu |
| | | | | |
| Val | Asp | Phe | Ala | Lys |
| | | | | 260 |
| | | | Arg | Arg |
| | | | Glu | Pro |
| | | | | 265 |
| | | | Asp | Arg |
| | | | Glu | Arg |
| | | | | 270 |
| | | | Leu | Arg |
| | | | | Ala |
| | | | | |
| Phe | Leu | Glu | Arg | Leu |
| | | | | 275 |
| | | | Glu | Phe |
| | | | | 280 |
| | | | Gly | Ser |
| | | | Leu | Leu |
| | | | | His |
| | | | | 285 |
| | | | Glu | Phe |
| | | | | Gly |
| | | | | Leu |
| | | | | |
| Leu | Glu | Ser | Pro | Lys |
| 290 | | | | |
| | | | Ala | Leu |
| | | | | 295 |
| | | | Glu | Glu |
| | | | Ala | Pro |
| | | | | 300 |
| | | | Trp | Pro |
| | | | Pro | Pro |
| | | | | Glu |
| | | | | |
| Gly | Ala | Phe | Val | Gly |
| 305 | | | | |
| | | | Phe | Val |
| | | | | 310 |
| | | | Leu | Ser |
| | | | Arg | Lys |
| | | | | 315 |
| | | | Glu | Pro |
| | | | Met | Trp |
| | | | | 320 |
| | | | | |
| Asp | Leu | Leu | Ala | Leu |
| | | | | 325 |
| | | | Ala | Ala |
| | | | Ala | Arg |
| | | | | 330 |
| | | | Gly | Gly |
| | | | Arg | Val |
| | | | | His |
| | | | | 335 |
| | | | Arg | Ala |
| | | | | |
| Ala | Asp | Pro | Leu | Ala |
| | | | | 340 |
| | | | Gly | Leu |
| | | | Lys | Asp |
| | | | | 345 |
| | | | Leu | Lys |
| | | | Glu | Val |
| | | | | 350 |
| | | | Arg | Gly |
| | | | | Leu |
| | | | Asp | Leu |
| | | | | |
| Leu | Ala | Lys | Asp | Leu |
| | | | | 355 |
| | | | Ala | Val |
| | | | | 360 |
| | | | Leu | Ala |
| | | | Ser | Arg |
| | | | | Glu |
| | | | | 365 |
| | | | Gly | Leu |
| | | | | Asp |
| | | | | Leu |

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
370 375 380
Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
385 390 395 400
Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
405 410 415
Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430
Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
435 440 445
Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
450 455 460
Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480
His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495
Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
500 505 510
Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
515 520 525
Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
530 535 540
Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
545 550 555 560
Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
565 570 575
Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
580 585 590
Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
595 600 605
Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640
 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765
 Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780
 His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800
 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815
 Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830
 Glu His His His His His His
 835

<210> 10

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 10

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp
 595 600 605

Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg
 625 630 635 640

Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly
 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg

| | | | | | | |
|---------------------------|---------------------|---------------------|-----------------|-----|--|-----|
| 705 | | 710 | | 715 | | 720 |
| Arg Gly Tyr Val | Glu Thr Leu Phe Gly | Arg Arg Arg Tyr Val | Pro Asp | | | |
| | 725 | 730 | 735 | | | |
| Leu Glu Ala Arg | Val Lys Ser Val | Arg Glu Ala Ala Glu | Arg Met Ala | | | |
| | 740 | 745 | 750 | | | |
| Phe Asn Met Pro | Val Gln Gly Thr | Ala Ala Asp Leu | Met Lys Leu Ala | | | |
| | 755 | 760 | 765 | | | |
| Met Val Lys Leu | Phe Pro Arg Leu | Glu Glu Met Gly | Ala Arg Met Leu | | | |
| | 770 | 775 | 780 | | | |
| Leu Gln Val His | Asn Glu Leu Val | Leu Glu Ala Pro | Lys Glu Arg Ala | | | |
| 785 | 790 | 795 | 800 | | | |
| Glu Ala Val Ala | Arg Leu Ala Lys | Glu Val Met Glu | Gly Val Tyr Pro | | | |
| | 805 | 810 | 815 | | | |
| Leu Ala Val Pro | Leu Glu Val Glu | Val Gly Ile Gly | Glu Asp Trp Leu | | | |
| | 820 | 825 | 830 | | | |
| Ser Ala Lys Glu | His His His His | His His His | | | | |
| | 835 | 840 | | | | |
| <210> 11 | | | | | | |
| <211> 842 | | | | | | |
| <212> PRT | | | | | | |
| <213> Artificial Sequence | | | | | | |
| <220> | | | | | | |
| <223> Synthetic | | | | | | |
| <400> 11 | | | | | | |
| Met Asn Ser Glu | Ala Met Leu Pro | Leu Phe Glu Pro | Lys Gly Arg Val | | | |
| 1 | 5 | 10 | 15 | | | |
| Leu Leu Val Asp | Gly His His Leu | Ala Tyr Arg Thr | Phe Phe Ala Leu | | | |
| | 20 | 25 | 30 | | | |
| Lys Gly Leu Thr | Thr Ser Arg Gly | Glu Pro Val Gln | Ala Val Tyr Gly | | | |
| | 35 | 40 | 45 | | | |

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60
Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80
Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95
Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110
Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115 120 125
Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
130 135 140
Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145 150 155 160
Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175
Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190
Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
195 200 205
Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
210 215 220
Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
225 230 235 240
Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
245 250 255
Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
260 265 270
Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
275 280 285
Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320
 Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335
 His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala
 340 345 350
 Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly
 355 360 365
 Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380
 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400
 Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu
 405 410 415
 Phe Ala Asn Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp
 420 425 430
 Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met
 435 440 445
 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser
 450 455 460
 Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg
 465 470 475 480
 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495
 Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys
 500 505 510
 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525
 Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys
 530 535 540
 Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg

| | | | | | | |
|-----------------------------------------------------------------|--|-----|--|-----|--|-----|
| 545 | | 550 | | 555 | | 560 |
| Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly | | | | | | |
| | | 565 | | 570 | | 575 |
| Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr | | | | | | |
| | | 580 | | 585 | | 590 |
| Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp | | | | | | |
| | | 595 | | 600 | | 605 |
| Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala | | | | | | |
| | | 610 | | 615 | | 620 |
| His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys | | | | | | |
| | | 625 | | 630 | | 635 |
| Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu | | | | | | |
| | | 645 | | 650 | | 655 |
| Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly | | | | | | |
| | | 660 | | 665 | | 670 |
| Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile | | | | | | |
| | | 675 | | 680 | | 685 |
| Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe | | | | | | |
| | | 690 | | 695 | | 700 |
| Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys | | | | | | |
| | | 705 | | 710 | | 715 |
| Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp | | | | | | |
| | | 725 | | 730 | | 735 |
| Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala | | | | | | |
| | | 740 | | 745 | | 750 |
| Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala | | | | | | |
| | | 755 | | 760 | | 765 |
| Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu | | | | | | |
| | | 770 | | 775 | | 780 |
| Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala | | | | | | |
| | | 785 | | 790 | | 795 |
| | | | | | | 800 |

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
820 825 830

Ser Ala Lys Gly His His His His His His
835 840

<210> 12

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 12

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

| | | | | | | |
|-----------------------------------------------------------------|--|-----|--|-----|--|-----|
| 385 | | 390 | | 395 | | 400 |
| Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn | | | | | | |
| | | 405 | | 410 | | 415 |
| Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His | | | | | | |
| | | 420 | | 425 | | 430 |
| Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr | | | | | | |
| | | 435 | | 440 | | 445 |
| Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu | | | | | | |
| | | 450 | | 455 | | 460 |
| Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly | | | | | | |
| | | 465 | | 470 | | 475 |
| | | | | 475 | | 480 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | | | | | |
| | | 485 | | 490 | | 495 |
| Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys | | | | | | |
| | | 500 | | 505 | | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | | | | | |
| | | 515 | | 520 | | 525 |
| Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn | | | | | | |
| | | 530 | | 535 | | 540 |
| Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg | | | | | | |
| | | 545 | | 550 | | 555 |
| | | | | 555 | | 560 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | | | |
| | | 565 | | 570 | | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | | | |
| | | 580 | | 585 | | 590 |
| Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val | | | | | | |
| | | 595 | | 600 | | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | | | |
| | | 610 | | 615 | | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His | | | | | | |
| | | 625 | | 630 | | 635 |
| | | | | 635 | | 640 |

Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765
 Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780
 His Asp Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val
 785 790 795 800
 Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val
 805 810 815
 Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Gly

<210> 13

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 13

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu
 450 455 460

Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80
 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95
 Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110
 Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125
 Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140
 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160
 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

[illegible]

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Gly

<210> 15

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 15

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn

| 405 | | | | | | | | | | 410 | | | | | 415 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Leu | Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Arg | Leu | Leu | Trp | Leu | Tyr | Arg | | | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | | | |
| Glu | Val | Glu | Arg | Pro | Leu | Ser | Ala | Val | Leu | Ala | His | Met | Glu | Ala | Thr | | | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | | | |
| Gly | Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val | | | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | | | |
| Ala | Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | | |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe | | | | |
| | | | 485 | | | | | | 490 | | | | | 495 | | | | | |
| Asp | Glu | Leu | Gly | Leu | Pro | Ala | Ile | Gly | Lys | Thr | Gln | Lys | Thr | Gly | Lys | | | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro | | | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | | | |
| Ile | Val | Glu | Lys | Ile | Leu | Gln | Tyr | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Ser | | | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | | | |
| Thr | Tyr | Ile | Asp | Pro | Leu | Pro | Asp | Leu | Ile | His | Pro | Arg | Thr | Gly | Arg | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | | | |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser | | | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | | | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765
 Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780
 His Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800
 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815
 Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu

<210> 16

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 16

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly His Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu
 450 455 460
 Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

| | | |
|-----------------------------------------------------------------|-----|-----|
| 740 | 745 | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | |
| 755 | 760 | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | |
| 770 | 775 | 780 |
| His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | | |
| 785 | 790 | 800 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | | |
| 805 | 810 | 815 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | | |
| 820 | 825 | 830 |
| Glu His His His His His His | | |
| 835 | | |
| <210> 17 | | |
| <211> 839 | | |
| <212> PRT | | |
| <213> Artificial Sequence | | |
| <220> | | |
| <223> Synthetic | | |
| <400> 17 | | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | | |
| 1 | 5 | 10 |
| 15 | | |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | | |
| 20 | 25 | 30 |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | | |
| 35 | 40 | 45 |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | | |
| 50 | 55 | 60 |
| Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly | | |
| 65 | 70 | 75 |
| 80 | | |

- 61 -

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu His Arg Asn
 405 410 415
 Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu
 450 455 460
 Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
 Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510
 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540
 Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560
 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575
 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

| 580 | | | | | | | | | | 585 | | | | | 590 | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | | | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | | | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | | | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala | | | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | | | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | | | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | | | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | | | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val | | | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | | | |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | | | | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | | | | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys | | | | | | |
| | | | 820 | | | | | 825 | | | | | 830 | | | | | | | | |

Glu His His His His His His
835

<210> 18

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 18

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg

| | | |
|-----------------------------------------------------------------|-----|-----|
| 420 | 425 | 430 |
| Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr | | |
| 435 | 440 | 445 |
| Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu | | |
| 450 | 455 | 460 |
| Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly | | |
| 465 | 470 | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | |
| 485 | 490 | 495 |
| Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys | | |
| 500 | 505 | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | |
| 515 | 520 | 525 |
| Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn | | |
| 530 | 535 | 540 |
| Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg | | |
| 545 | 550 | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | |
| 565 | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | |
| 580 | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | |
| 595 | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | |
| 610 | 615 | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | |
| 625 | 630 | 635 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | | |
| 645 | 650 | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | | |
| 660 | 665 | 670 |

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 19

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 19

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

| | | |
|------------------------------------------------------------------------------------|-----|-----|
| 260 | 265 | 270 |
| Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285 | | |
| Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300 | | |
| Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320 | | |
| Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335 | | |
| Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350 | | |
| Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365 | | |
| Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 375 380 | | |
| Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400 | | |
| Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415 | | |
| Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 430 | | |
| Glu Val Glu Arg Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445 | | |
| Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 455 460 | | |
| Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475 480 | | |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495 | | |
| Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510 | | |

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 20

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 20

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu

| 100 | | | | | 105 | | | | | 110 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Lys |
| | | 130 | | | | | 135 | | | | | 140 | | | |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | Glu |
| | | 145 | | | | | 150 | | | | | 155 | | | 160 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg | Ala | Leu | Thr | Gly | Asp | Glu | Ser | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Arg | Lys | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu | Ala | Leu | Leu | Lys | Asn | Leu | Asp | Arg |
| | | 210 | | | | | 215 | | | | | 220 | | | |
| Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys | Ile | Leu | Ala | His | Met | Asp | Asp | Leu |
| | | 225 | | | | | 230 | | | | | 235 | | | 240 |
| Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys | Val | Arg | Thr | Asp | Leu | Pro | Leu | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Asp | Phe | Ala | Lys | Arg | Arg | Glu | Pro | Asp | Arg | Glu | Arg | Leu | Arg | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu |
| | | 290 | | | | | 295 | | | | 300 | | | | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala |
| | | 305 | | | | | 310 | | | | | 315 | | | 320 |
| Asp | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Arg | Gly | Gly | Arg | Val | His | Arg | Ala |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Ala | Asp | Pro | Leu | Ala | Gly | Leu | Lys | Asp | Leu | Lys | Glu | Val | Arg | Gly | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His
835

<210> 21

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 21

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

690

695

700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 22

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 22

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45
 Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60
 Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80
 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95
 Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110
 Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125
 Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140
 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160
 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Leu
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser

| | | | | |
|-----------------------------------------------------------------|-----|-----|-----|---------|
| 530 | | 535 | | 540 |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | | | |
| 545 | | 550 | | 555 560 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | |
| | 565 | | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | |
| | 580 | | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | | | |
| | 595 | | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | |
| | 610 | | 615 | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | | | |
| | 625 | | 630 | 635 640 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | | | | |
| | 645 | | 650 | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | | | | |
| | 660 | | 665 | 670 |
| Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu | | | | |
| | 675 | | 680 | 685 |
| Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val | | | | |
| | 690 | | 695 | 700 |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr | | | | |
| | 705 | | 710 | 715 720 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala | | | | |
| | 725 | | 730 | 735 |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met | | | | |
| | 740 | | 745 | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | | | |
| | 755 | | 760 | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | | | |
| | 770 | | 775 | 780 |

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 23

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 23

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser

| | | | | |
|-----------------------------------------------------------------|-----|-----|-----|-----|
| 370 | | 375 | | 380 |
| Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr | | | | |
| 385 | | 390 | | 400 |
| Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn | | | | |
| | 405 | | 410 | 415 |
| Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His | | | | |
| | 420 | | 425 | 430 |
| Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr | | | | |
| | 435 | | 440 | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | | | |
| | 450 | | 455 | 460 |
| Ala Glu Glu Ile Arg Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | | | |
| 465 | | 470 | | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | | | |
| | 485 | | 490 | 495 |
| Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys | | | | |
| | 500 | | 505 | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | | | |
| | 515 | | 520 | 525 |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser | | | | |
| | 530 | | 535 | 540 |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | | | |
| 545 | | 550 | | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | |
| | 565 | | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | |
| | 580 | | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | | | |
| | 595 | | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | |
| | 610 | | 615 | 620 |

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640
 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765
 Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780
 His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800
 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815
 Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830
 Glu His His His His His His
 835

<210> 24

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 24

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365
 Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430
 Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr

| | | | | | | | | | | | | | | | |
|-------|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 705 | | 710 | | 715 | | 720 | | | | | | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val |
| | | | 805 | | | | | | 810 | | | | | 815 | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys |
| | | 820 | | | | | | 825 | | | | | 830 | | |
| Glu | His | His | His | His | His | His | | | | | | | | | |
| | | 835 | | | | | | | | | | | | | |
| <210> | 25 | | | | | | | | | | | | | | |
| <211> | 839 | | | | | | | | | | | | | | |
| <212> | PRT | | | | | | | | | | | | | | |
| <213> | Artificial Sequence | | | | | | | | | | | | | | |
| <220> | | | | | | | | | | | | | | | |
| <223> | Synthetic | | | | | | | | | | | | | | |
| <400> | 25 | | | | | | | | | | | | | | |
| Met | Asn | Ser | Gly | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | His | Ala | Leu | Lys |
| | | 20 | | | | | | 25 | | | | | 30 | | |
| Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe |
| | 35 | | | | | | 40 | | | | | 45 | | | |

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

| | | | | | | |
|-----------------------------------------------------------------|-----|-----|--|-----|--|-----|
| 545 | | 550 | | 555 | | 560 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | 565 | | | 570 | | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | 580 | | | 585 | | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | 595 | | | 600 | | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | 610 | | | 615 | | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | 625 | | | 630 | | 635 |
| | | | | | | 640 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | 645 | | | 650 | | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | 660 | | | 665 | | 670 |
| Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu | 675 | | | 680 | | 685 |
| Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val | 690 | | | 695 | | 700 |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr | 705 | | | 710 | | 715 |
| | | | | | | 720 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala | 725 | | | 730 | | 735 |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met | 740 | | | 745 | | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | 755 | | | 760 | | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | 770 | | | 775 | | 780 |
| His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | 785 | | | 790 | | 795 |
| | | | | | | 800 |

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 26

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 26

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

| | | | | | | |
|-----------------------------------------------------------------|--|-----|--|-----|--|-----|
| 385 | | 390 | | 395 | | 400 |
| Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn | | | | | | |
| | | 405 | | 410 | | 415 |
| Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His | | | | | | |
| | | 420 | | 425 | | 430 |
| Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr | | | | | | |
| | | 435 | | 440 | | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | | | | | |
| | | 450 | | 455 | | 460 |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | | | | | |
| | | 465 | | 470 | | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | | | | | |
| | | 485 | | 490 | | 495 |
| Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys | | | | | | |
| | | 500 | | 505 | | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | | | | | |
| | | 515 | | 520 | | 525 |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser | | | | | | |
| | | 530 | | 535 | | 540 |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | | | | | |
| | | 545 | | 550 | | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | | | |
| | | 565 | | 570 | | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | | | |
| | | 580 | | 585 | | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | | | | | |
| | | 595 | | 600 | | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | | | |
| | | 610 | | 615 | | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | | | | | |
| | | 625 | | 630 | | 635 |
| | | | | | | 640 |

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 27

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 27

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Val | Phe | Asp | Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Glu | Ala | Tyr | Gly | 65 | 70 | 75 | 80 |
| Gly | Tyr | Lys | Ala | Gly | Arg | Ala | Pro | Thr | Pro | Glu | Asp | Phe | Pro | Arg | Gln | 85 | 90 | 95 | |
| Leu | Ala | Leu | Ile | Lys | Glu | Leu | Val | Asp | Leu | Leu | Gly | Leu | Ala | Arg | Leu | 100 | 105 | 110 | |
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | Lys | 115 | 120 | 125 | |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Lys | 130 | 135 | 140 | |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | Glu | 145 | 150 | 155 | 160 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Arg | 165 | 170 | | 175 |
| Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg | Ala | Leu | Thr | Gly | Asp | Glu | Ser | Asp | 180 | 185 | 190 | |
| Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Arg | Lys | Leu | 195 | 200 | 205 | |
| Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu | Ala | Leu | Leu | Lys | Asn | Leu | Asp | Arg | 210 | 215 | 220 | |
| Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys | Ile | Leu | Ala | His | Met | Asp | Asp | Leu | 225 | 230 | 235 | 240 |
| Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys | Val | Arg | Thr | Asp | Leu | Pro | Leu | Glu | 245 | 250 | 255 | |
| Val | Asp | Phe | Ala | Lys | Arg | Arg | Glu | Pro | Asp | Arg | Glu | Arg | Leu | Arg | Ala | 260 | 265 | 270 | |
| Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu | 275 | 280 | 285 | |
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu | 290 | 295 | 300 | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala | 305 | 310 | 315 | 320 |

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

| 565 | | | | | | | | | | 570 | | | | | 575 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | | |

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 29

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 29

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn

| 405 | | | | | 410 | | | | | 415 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Lys | Leu | Leu | Trp | Leu | Tyr | His |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Val | Glu | Lys | Pro | Leu | Ser | Arg | Val | Leu | Ala | His | Met | Glu | Ala | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ala | Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly |
| 465 | | | | | | 470 | | | | | 475 | | | | 480 |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Asp | Glu | Leu | Gly | Leu | Pro | Ala | Ile | Gly | Lys | Thr | Glu | Lys | Thr | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro |
| | | 515 | | | | | 520 | | | | | 525 | | | |
| Ile | Val | Glu | Lys | Ile | Leu | Gln | Tyr | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Ser |
| | 530 | | | | | 535 | | | | | 540 | | | | |
| Thr | Tyr | Val | Asp | Pro | Leu | Pro | Asp | Leu | Ile | His | Pro | Arg | Thr | Gly | Arg |
| 545 | | | | | | 550 | | | | | 555 | | | | 560 |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His |
| 625 | | | | | | 630 | | | | | 635 | | | | 640 |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp |
| | | | 645 | | | | | | 650 | | | | | 655 | |

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 30

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 30

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu
 355 360 365
 Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430
 Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

| | | |
|-----------------------------------------------------------------|-----|-----|
| 740 | 745 | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | |
| 755 | 760 | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | |
| 770 | 775 | 780 |
| His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | | |
| 785 | 790 | 795 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | | |
| | 805 | 810 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | | |
| | 820 | 825 |
| Glu His His His His His His | | |
| 835 | | |
| <210> 31 | | |
| <211> 839 | | |
| <212> PRT | | |
| <213> Artificial Sequence | | |
| <220> | | |
| <223> Synthetic | | |
| <400> 31 | | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | | |
| 1 | 5 | 10 |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | | |
| | 20 | 25 |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | | |
| 35 | 40 | 45 |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | | |
| 50 | 55 | 60 |
| Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly | | |
| 65 | 70 | 75 |
| | | 80 |

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

| 580 | | | | | | | | | | 585 | | | | | 590 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | | | | |
| | | | 805 | | | | | | 810 | | | | | 815 | | | | | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys | | | | |
| | | 820 | | | | | | 825 | | | | | 830 | | | | | | |

Glu His His His His His His
835

<210> 32

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 32

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg

| | | |
|-----------------------------------------------------------------|-----|-----|
| 420 | 425 | 430 |
| Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr | | |
| 435 | 440 | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | |
| 450 | 455 | 460 |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | |
| 465 | 470 | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | |
| 485 | 490 | 495 |
| Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys | | |
| 500 | 505 | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | |
| 515 | 520 | 525 |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser | | |
| 530 | 535 | 540 |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | |
| 545 | 550 | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | |
| 565 | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | |
| 580 | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | |
| 595 | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | |
| 610 | 615 | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | |
| 625 | 630 | 635 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | | |
| 645 | 650 | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | | |
| 660 | 665 | 670 |

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 33

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 33

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

| | | |
|-----------------------------------------------------------------|-----|-----|
| 260 | 265 | 270 |
| Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu | | |
| 275 | 280 | 285 |
| Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu | | |
| 290 | 295 | 300 |
| Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala | | |
| 305 | 310 | 315 |
| Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala | | |
| 325 | 330 | 335 |
| Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu | | |
| 340 | 345 | 350 |
| Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu | | |
| 355 | 360 | 365 |
| Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser | | |
| 370 | 375 | 380 |
| Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr | | |
| 385 | 390 | 395 |
| Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn | | |
| 405 | 410 | 415 |
| Leu Trp Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg | | |
| 420 | 425 | 430 |
| Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr | | |
| 435 | 440 | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | |
| 450 | 455 | 460 |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | |
| 465 | 470 | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | |
| 485 | 490 | 495 |
| Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys | | |
| 500 | 505 | 510 |

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 34

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 34

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr

| | | |
|-----------------------------------------------------------------|-----|-----|
| 100 | 105 | 110 |
| Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu | | |
| 115 | 120 | 125 |
| Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala | | |
| 130 | 135 | 140 |
| Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His | | |
| 145 | 150 | 155 |
| Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly | | |
| 165 | 170 | 175 |
| Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro | | |
| 180 | 185 | 190 |
| Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu | | |
| 195 | 200 | 205 |
| Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu | | |
| 210 | 215 | 220 |
| Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu | | |
| 225 | 230 | 235 |
| Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu | | |
| 245 | 250 | 255 |
| Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly | | |
| 260 | 265 | 270 |
| Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu | | |
| 275 | 280 | 285 |
| Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro | | |
| 290 | 295 | 300 |
| Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro | | |
| 305 | 310 | 315 |
| Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val | | |
| 325 | 330 | 335 |
| His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val | | |
| 340 | 345 | 350 |

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620
 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640
 Asp Ile Ala Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655
 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670
 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685
 Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700
 Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
 705 710 715 720
 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
 725 730 735
 Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
 740 745 750
 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
 755 760 765
 Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
 770 775 780
 Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
 785 790 795 800
 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
 805 810 815
 Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
 820 825 830
 Ser Ala Lys Gly His His His His His His
 835 840

<210> 35

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 35

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

| 690 | | | | | 695 | | | | | 700 | | | | | |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Lys | Val | Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Lys |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Arg | Gly | Tyr | Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Leu | Asn | Ala | Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Ala | Met | Ala |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Asn | Met | Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Met | Val | Lys | Leu | Phe | Pro | Arg | Leu | Arg | Glu | Met | Gly | Ala | Arg | Met | Leu |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Leu | Gln | Val | His | Asn | Glu | Leu | Leu | Leu | Glu | Ala | Pro | Gln | Ala | Arg | Ala |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Glu | Glu | Val | Ala | Ala | Leu | Ala | Lys | Glu | Ala | Met | Glu | Lys | Ala | Tyr | Pro |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Leu | Ala | Val | Pro | Leu | Glu | Val | Glu | Val | Gly | Met | Gly | Glu | Asp | Trp | Leu |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Ser | Ala | Lys | Gly | His | His | His | His | His | His | | | | | | |
| | | 835 | | | | | 840 | | | | | | | | |
| <210> 36 | | | | | | | | | | | | | | | |
| <211> 842 | | | | | | | | | | | | | | | |
| <212> PRT | | | | | | | | | | | | | | | |
| <213> Artificial Sequence | | | | | | | | | | | | | | | |
| <220> | | | | | | | | | | | | | | | |
| <223> Synthetic | | | | | | | | | | | | | | | |
| <400> 36 | | | | | | | | | | | | | | | |
| Met | Asn | Ser | Glu | Ala | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | Phe | Ala | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys

| | | | | |
|-----------------------------------------------------------------|--|-----|--|-------------|
| 530 | | 535 | | 540 |
| Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg | | | | |
| 545 | | 550 | | 555 560 |
| Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly | | | | |
| | | 565 | | 570 575 |
| Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr | | | | |
| | | 580 | | 585 590 |
| Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp | | | | |
| | | 595 | | 600 605 |
| Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala | | | | |
| | | 610 | | 615 620 |
| His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys | | | | |
| | | 625 | | 630 635 640 |
| Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu | | | | |
| | | 645 | | 650 655 |
| Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly | | | | |
| | | 660 | | 665 670 |
| Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile | | | | |
| | | 675 | | 680 685 |
| Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe | | | | |
| | | 690 | | 695 700 |
| Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys | | | | |
| | | 705 | | 710 715 720 |
| Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp | | | | |
| | | 725 | | 730 735 |
| Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala | | | | |
| | | 740 | | 745 750 |
| Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala | | | | |
| | | 755 | | 760 765 |
| Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu | | | | |
| | | 770 | | 775 780 |

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
 820 825 830

Ser Ala Lys Gly His His His His His His
 835 840

<210> 37

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 37

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu

| | | | | |
|---------|-----|-----|-----|---------|
| 370 | | 375 | | 380 |
| Asp 385 | Pro | Ser | Asn | Thr 390 |
| | Pro | Glu | Gly | Val 395 |
| | Ala | Arg | Arg | Tyr 400 |
| | Gly | Gly | | |
| Glu 405 | Trp | Thr | Glu | Asp 410 |
| | Ala | Ala | His | Arg 415 |
| | Ala | Leu | Leu | Ser |
| | Glu | Arg | Leu | |
| His 420 | Arg | Asn | Leu | Leu 425 |
| | Lys | Arg | Leu | Glu 430 |
| | Glu | Gly | Glu | Glu 435 |
| | Lys | Leu | Leu | Trp 440 |
| Leu 435 | Tyr | His | Glu | Val 445 |
| | Glu | Val | Glu | Lys 450 |
| | Pro | Leu | Ser | Arg 455 |
| | Val | Leu | Gln | Ala 460 |
| Glu 450 | Ala | Thr | Gly | Val 465 |
| | Arg | Arg | Asp | Val 470 |
| | Ala | Tyr | Leu | Glu 475 |
| | Gln | Ala | Leu | Ser 480 |
| Leu 465 | Glu | Leu | Ala | Glu 485 |
| | Glu | Glu | Ile | Arg 490 |
| | Arg | Arg | Leu | Glu 495 |
| | Glu | Glu | Glu | Val 500 |
| | Phe | Arg | | |
| Leu 485 | Ala | Gly | His | Pro 490 |
| | Phe | Asn | Leu | Asn 495 |
| | Ser | Arg | Asp | Gln 500 |
| | Leu | Glu | Arg | |
| Val 500 | Leu | Phe | Asp | Glu 505 |
| | Leu | Arg | Leu | Pro 510 |
| | Ala | Leu | Lys | Lys 515 |
| | Thr | Lys | Lys | |
| Thr 515 | Gly | Lys | Arg | Ser 520 |
| | Thr | Ser | Ala | Ala 525 |
| | Val | Leu | Glu | Ala 530 |
| | Leu | Arg | Glu | Leu 535 |
| Ala 530 | His | Pro | Ile | Val 540 |
| | Glu | Lys | Ile | Leu 545 |
| | Gln | His | Arg | Glu 550 |
| | Leu | Thr | Lys | |
| Leu 545 | Lys | Asn | Thr | Tyr 555 |
| | Val | Asp | Pro | Leu 560 |
| | Pro | Ser | Leu | Val 565 |
| | His | Pro | Arg | |
| Thr 565 | Gly | Arg | Leu | His 570 |
| | Thr | Arg | Phe | Asn 575 |
| | Gln | Thr | Ala | Thr 580 |
| | Ala | Thr | Ala | Gly 585 |
| Arg 580 | Leu | Ser | Ser | Ser 590 |
| | Asp | Pro | Asn | Leu 595 |
| | Gln | Asn | Ile | Pro 600 |
| | Val | Arg | Thr | Ala 605 |
| Pro 595 | Leu | Gly | Gln | Arg 610 |
| | Ile | Arg | Ala | Phe 615 |
| | Ala | Glu | Ala | Gly 620 |
| | Trp | | | |
| Ala 610 | Leu | Val | Ala | Leu 615 |
| | Asp | Tyr | Ser | Gln 620 |
| | Ile | Glu | Leu | Arg 625 |
| | Val | Leu | Ala | |

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640
 Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655
 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670
 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685
 Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700
 Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
 705 710 715 720
 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
 725 730 735
 Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
 740 745 750
 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
 755 760 765
 Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
 770 775 780
 Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
 785 790 795 800
 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
 805 810 815
 Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
 820 825 830
 Ser Ala Lys Gly His His His His His His
 835 840

<210> 38

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 38

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr

| | | | | | | | | | | | | | | | |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 705 | | 710 | | 715 | | 720 | | | | | | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Ala | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Glu | His | His | His | His | His | His | | | | | | | | | |
| | | | 835 | | | | | | | | | | | | |
| <210> 39 | | | | | | | | | | | | | | | |
| <211> 839 | | | | | | | | | | | | | | | |
| <212> PRT | | | | | | | | | | | | | | | |
| <213> Artificial Sequence | | | | | | | | | | | | | | | |
| <220> | | | | | | | | | | | | | | | |
| <223> Synthetic | | | | | | | | | | | | | | | |
| <400> 39 | | | | | | | | | | | | | | | |
| Met | Asn | Ser | Gly | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | His | Ala | Leu | Lys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe |
| | | 35 | | | | | 40 | | | | | 45 | | | |

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60
 Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80
 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95
 Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110
 Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125
 Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140
 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160
 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 545 | | 550 | | 555 | | 560 | | | | | | | | | |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser |
| | | | | 565 | | | | | 570 | | | | | 575 | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly |
| | | | 580 | | | | | 585 | | | | | 590 | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | Ala |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Ala | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 40

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 40

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

| | | | | | | |
|-----------------------------------------------------------------|-------------------------------------------------|-----|-----|-----|-----|-----|
| 385 | | 390 | | 395 | | 400 |
| Glu Glu Ala Gly | Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn | | | | | |
| | 405 | | | 410 | | 415 |
| Leu Leu Lys Arg | Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg | | | | | |
| | 420 | | 425 | | | 430 |
| Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr | | | | | | |
| | 435 | | 440 | | | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | | | | | |
| | 450 | | 455 | | 460 | |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | | | | | |
| 465 | | 470 | | 475 | | 480 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | | | | | |
| | 485 | | 490 | | | 495 |
| Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys | | | | | | |
| | 500 | | 505 | | | 510 |
| Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | | | | | |
| | 515 | | 520 | | 525 | |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser | | | | | | |
| | 530 | | 535 | | 540 | |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | | | | | |
| 545 | | 550 | | 555 | | 560 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | | | |
| | 565 | | 570 | | | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Ala Thr Pro Leu Gly | | | | | | |
| | 580 | | 585 | | | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | | | | | |
| | 595 | | 600 | | 605 | |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | | | |
| | 610 | | 615 | | 620 | |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | | | | | |
| 625 | | 630 | | 635 | | 640 |

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 41

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 41

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu
65 70 75 80
Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95
Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110
Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125
Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140
Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160
Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175
Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190
Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205
Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220
Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240
Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
245 250 255
Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
260 265 270
Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
275 280 285
Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
290 295 300
Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 43

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 43

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Glu Thr Glu Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn

| 405 | | | | | | | | | | 410 | | | | | 415 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Leu | Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Arg | Leu | Leu | Trp | Leu | Tyr | Arg | | | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | | | |
| Glu | Val | Glu | Arg | Pro | Leu | Ser | Ala | Val | Leu | Ala | His | Met | Glu | Ala | Thr | | | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | | | |
| Gly | Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val | | | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | | | |
| Ala | Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | | |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe | | | | |
| | | | 485 | | | | | 490 | | | | | | 495 | | | | | |
| Asp | Glu | Leu | Gly | Leu | Pro | Ala | Ile | Gly | Lys | Thr | Gln | Lys | Thr | Gly | Lys | | | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro | | | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | | | |
| Ile | Val | Glu | Lys | Ile | Leu | Gln | Tyr | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Ser | | | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | | | |
| Thr | Tyr | Ile | Asp | Pro | Leu | Pro | Asp | Leu | Ile | His | Pro | Arg | Thr | Gly | Arg | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | | | |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser | | | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | | | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 44

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 44

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510
 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540
 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560
 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575
 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590
 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605
 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620
 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640
 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

| | | | | | |
|-----------------------------------------------------------------|-----|-----|-----|-----|-----|
| | 740 | | 745 | | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | 755 | | 760 | | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | 770 | | 775 | | 780 |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | 785 | | 790 | | 795 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | | 805 | | 810 | 815 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | | 820 | | 825 | 830 |
| Glu His His His His His His | 835 | | | | |
| <210> 45 | | | | | |
| <211> 839 | | | | | |
| <212> PRT | | | | | |
| <213> Artificial Sequence | | | | | |
| <220> | | | | | |
| <223> Synthetic | | | | | |
| <400> 45 | | | | | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | 1 | 5 | | 10 | 15 |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | | 20 | | 25 | 30 |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | | 35 | | 40 | 45 |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | | 50 | | 55 | 60 |
| Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly | | 65 | | 70 | 75 |
| | | | | | 80 |

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

| 580 | | | | | | | | | | 585 | | | | | 590 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | |
| Ala | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys | | | | |
| | | | 820 | | | | | 825 | | | | | 830 | | | | | | |

Glu His His His His His His
835

<210> 46

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 46

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg

| 420 | | | | | | | | | | 425 | | | | | 430 | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Glu | Val | Glu | Arg | Pro | Leu | Ser | Ala | Val | Leu | Ala | His | Met | Glu | Ala | Thr | | | | | | | | | | | | | | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | | | | | | | | | | | | | | |
| Gly | Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val | | | | | | | | | | | | | | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | | | | | | | | | | | | | | |
| Ala | Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly | | | | | | | | | | | | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | | | | | | | | | | | | | | |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe | | | | | | | | | | | | | | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | | | | | | | | | | | | | | |
| Asp | Glu | Leu | Arg | Leu | Pro | Lys | Ile | Asn | Lys | Thr | Lys | Lys | Thr | Gly | Lys | | | | | | | | | | | | | | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | | | | | | | | | | | | | | |
| Arg | Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro | | | | | | | | | | | | | | | |
| | | 515 | | | | 520 | | | | | | 525 | | | | | | | | | | | | | | | | | | |
| Ile | Val | Glu | Lys | Ile | Leu | Gln | Tyr | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Ser | | | | | | | | | | | | | | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | | | | | | | | | | | | | | |
| Thr | Tyr | Ile | Asp | Pro | Leu | Pro | Asp | Leu | Ile | His | Pro | Arg | Thr | Gly | Arg | | | | | | | | | | | | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | | | | | | | | | | | | | | |
| Leu | His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser | | | | | | | | | | | | | | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | | | | | | | | | | | | | | |
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | | | | | | | | | | | | | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | | | | | | | | | | | | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | | | | | | | | | | | | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | | | | | | | | | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | | | | | | | | | | | | | | |
| | | 610 | | | | 615 | | | | | 620 | | | | | | | | | | | | | | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | | | | | | | | | | | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | 640 | | | | | | | | | | | | | | | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | | | | | | | | | | | | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | | | | | | | | | | | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | | | | | | | | | | | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | | | | | | | | | | | | |

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His
835

<210> 47

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 47

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

| 260 | | | | | 265 | | | | | 270 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu |
| | 275 | | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Arg | Gly | Gly | Arg | Val | His | Arg | Ala |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Glu | Pro | Tyr | Lys | Ala | Leu | Arg | Asp | Leu | Lys | Glu | Ala | Arg | Gly | Leu |
| | | | 340 | | | | | 345 | | | | | | 350 | |
| Leu | Ala | Lys | Asp | Leu | Ser | Val | Leu | Ala | Leu | Arg | Glu | Gly | Leu | Gly | Leu |
| | | 355 | | | | | 360 | | | | | 365 | | | |
| Pro | Pro | Gly | Asp | Asp | Pro | Met | Leu | Leu | Ala | Tyr | Leu | Leu | Asp | Pro | Ser |
| | 370 | | | | | 375 | | | | | 380 | | | | |
| Asn | Thr | Thr | Pro | Glu | Gly | Val | Ala | Arg | Arg | Tyr | Gly | Gly | Glu | Trp | Thr |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 |
| Glu | Glu | Ala | Gly | Glu | Arg | Ala | Ala | Leu | Ser | Glu | Arg | Leu | Phe | Ala | Asn |
| | | | | 405 | | | | | 410 | | | | | 415 | |
| Leu | Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Arg | Leu | Leu | Trp | Leu | Tyr | Arg |
| | | | 420 | | | | | 425 | | | | | 430 | | |
| Glu | Val | Glu | Arg | Pro | Leu | Ser | Ala | Val | Leu | Ala | His | Met | Glu | Ala | Thr |
| | | 435 | | | | | 440 | | | | | 445 | | | |
| Gly | Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val |
| | 450 | | | | | 455 | | | | | 460 | | | | |
| Ala | Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 |
| His | Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe |
| | | | 485 | | | | | | 490 | | | | | 495 | |
| Asp | Glu | Leu | Arg | Ile | Pro | Lys | Ile | Lys | Lys | Thr | His | Lys | Thr | Gly | Lys |
| | | | 500 | | | | | 505 | | | | | 510 | | |

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540
 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560
 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575
 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590
 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605
 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620
 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640
 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 48

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 48

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu

| 100 | | | | | 105 | | | | | 110 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | Glu |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg | Ala | Leu | Thr | Gly | Asp | Glu | Ser | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Arg | Lys | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu | Ala | Leu | Leu | Lys | Asn | Leu | Asp | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys | Ile | Leu | Ala | His | Met | Asp | Asp | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys | Val | Arg | Thr | Asp | Leu | Pro | Leu | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Asp | Phe | Ala | Lys | Arg | Arg | Glu | Pro | Asp | Arg | Glu | Arg | Leu | Arg | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Asp | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Arg | Gly | Gly | Arg | Val | His | Arg | Ala |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Pro | Glu | Pro | Tyr | Lys | Ala | Leu | Arg | Asp | Leu | Lys | Glu | Ala | Arg | Gly | Leu |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
 Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510
 Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540
 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560
 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575
 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590
 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620
 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640
 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685
 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700
 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720
 Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735
 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750
 Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765
 Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780
 Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800
 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815
 Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830
 Glu His His His His His His
 835

<210> 49

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 49

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
500 505 510

Arg Ser Thr Ser Ala Ala Leu Leu Glu Ala Leu Arg Glu Ala His Pro
515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

| | | |
|-----------------------------------------------------------------|-----|-------------|
| 690 | 695 | 700 |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr | | |
| 705 | 710 | 715 720 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala | | |
| | 725 | 730 735 |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met | | |
| | 740 | 745 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | |
| | 755 | 760 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | |
| | 770 | 775 780 |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | | |
| | 785 | 790 795 800 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | | |
| | 805 | 810 815 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | | |
| | 820 | 825 830 |
| Glu His His His His His His | | |
| | 835 | |
| <210> 50 | | |
| <211> 842 | | |
| <212> PRT | | |
| <213> Artificial Sequence | | |
| <220> | | |
| <223> Synthetic | | |
| <400> 50 | | |
| Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val | | |
| 1 | 5 | 10 15 |
| Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu | | |
| | 20 | 25 30 |

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Arg Gly Val Arg Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
290 295 300
Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
305 310 315 320
Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
325 330 335
His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
340 345 350
Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
355 360 365
Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
370 375 380
Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
385 390 395 400
Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415
His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
420 425 430
Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
435 440 445
Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
450 455 460
Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
465 470 475 480
Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495
Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
500 505 510
Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
515 520 525
Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys

| | | | | |
|---------|---------|---------|---------|-----|
| 530 | | 535 | | 540 |
| Leu 545 | Lys | Asn | Thr | Tyr |
| | Val 550 | Asp | Pro | Leu |
| | | Pro | Leu | Pro |
| | | Ser 555 | Leu | Val |
| | | | His | Pro |
| | | | Arg | 560 |
| Thr | Gly | Arg | Leu | His |
| | | Thr 565 | Arg | Phe |
| | | | Asn | Gln |
| | | | Thr 570 | Ala |
| | | | Thr | Ala |
| | | | Thr | Ala |
| | | | Thr | Gly |
| | | | | 575 |
| Arg | Leu | Ser | Ser | Ser |
| | | 580 | Asp | Pro |
| | | | Asn | Leu |
| | | | 585 | Gln |
| | | | Asn | Ile |
| | | | Pro | Val |
| | | | | 590 |
| Pro | Leu | Gly | Gln | Arg |
| | | 595 | Ile | Arg |
| | | | Arg | Arg |
| | | | Ala | Phe |
| | | | Val | Ala |
| | | | Glu | Ala |
| | | | | 605 |
| Ala | Leu | Val | Ala | Leu |
| | | | Asp | Tyr |
| | | | 615 | Ser |
| | | | Gln | Ile |
| | | | Glu | Leu |
| | | | Arg | Val |
| | | | | 620 |
| His | Leu | Ser | Gly | Asp |
| | | | | Glu |
| | | | | 630 |
| | | | Asn | Leu |
| | | | Ile | Arg |
| | | | Val | Phe |
| | | | Gln | Glu |
| | | | Gly | Lys |
| | | | | 640 |
| Asp | Ile | His | Thr | Gln |
| | | | | 645 |
| | | | Thr | Ala |
| | | | Ser | Trp |
| | | | Met | Phe |
| | | | | 650 |
| | | | Gly | Val |
| | | | Pro | Pro |
| | | | | 655 |
| Ala | Val | Asp | Pro | Leu |
| | | | 660 | Met |
| | | | Arg | Arg |
| | | | Ala | Ala |
| | | | Lys | Thr |
| | | | Val | Asn |
| | | | | 670 |
| Val | Leu | Tyr | Gly | Met |
| | | | | 675 |
| | | | Ser | Ala |
| | | | | 680 |
| | | | Arg | Leu |
| | | | Ser | Gln |
| | | | | 685 |
| Pro | Tyr | Glu | Glu | Ala |
| | | | | 690 |
| | | | Val | Ala |
| | | | | 695 |
| | | | Phe | Ile |
| | | | Glu | Arg |
| | | | Tyr | Phe |
| | | | | 700 |
| Pro | Lys | Val | Arg | Ala |
| | | | | 705 |
| | | | Trp | Ile |
| | | | | 710 |
| | | | Glu | Lys |
| | | | Thr | Leu |
| | | | | 715 |
| | | | Glu | Glu |
| | | | Gly | Arg |
| | | | | 720 |
| Arg | Gly | Tyr | Val | Glu |
| | | | | 725 |
| | | | Thr | Leu |
| | | | Phe | Gly |
| | | | | 730 |
| | | | Arg | Arg |
| | | | Arg | Tyr |
| | | | Val | Pro |
| | | | | 735 |
| Leu | Asn | Ala | Arg | Val |
| | | | | 740 |
| | | | Lys | Ser |
| | | | Val | Arg |
| | | | | 745 |
| | | | Glu | Ala |
| | | | Ala | Glu |
| | | | Arg | Met |
| | | | | 750 |
| Phe | Asn | Met | Pro | Val |
| | | | | 755 |
| | | | Gln | Gly |
| | | | Thr | Ala |
| | | | | 760 |
| | | | Ala | Asp |
| | | | Leu | Met |
| | | | | 765 |
| | | | Lys | Leu |
| | | | | Ala |
| Met | Val | Lys | Leu | Phe |
| | | | | 770 |
| | | | Pro | Arg |
| | | | | 775 |
| | | | Leu | Arg |
| | | | Glu | Met |
| | | | | 780 |
| | | | Gly | Ala |
| | | | Arg | Met |
| | | | | Leu |

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
 820 825 830

Ser Ala Lys Gly His His His His His His
 835 840

<210> 51

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 51

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Tyr Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu

| | | | | |
|---------|-----|-----|-----|---------|
| 370 | | 375 | | 380 |
| Asp 385 | Pro | Ser | Asn | Thr 390 |
| | Pro | Glu | Gly | Val 395 |
| | Ala | Arg | Arg | Tyr 400 |
| | Gly | Gly | | |
| Glu 405 | Trp | Thr | Glu | Asp 410 |
| | Ala | Ala | His | Arg 415 |
| | Leu | Leu | Ser | Glu 420 |
| | Leu | Leu | Lys | Arg 425 |
| | Glu | Gly | Glu | Glu 430 |
| | Lys | Leu | Leu | Trp 435 |
| | His | Arg | Asn | Leu 440 |
| | Leu | Leu | Lys | Arg 445 |
| | Pro | Leu | Ser | Arg 450 |
| | Val | Ala | Tyr | Leu 455 |
| | Glu | Gly | Val | Arg 460 |
| | Arg | Arg | Asp | Val 465 |
| | Ala | Tyr | Leu | Gln 470 |
| | Ala | Leu | Ser | Arg 475 |
| | Met | | | |
| | His | Ala | Leu | Ser 480 |
| | Arg | Phe | Val | Glu 485 |
| | Glu | Glu | Glu | Glu 490 |
| | Val | Glu | Glu | Glu 495 |
| | Leu | Glu | Leu | Ala 500 |
| | Ala | Gly | His | Pro 505 |
| | Arg | Asp | Gln | Leu 510 |
| | Arg | Asp | Gln | Leu 515 |
| | Thr | Gln | Lys | Thr 520 |
| | Val | Ala | Leu | Glu 525 |
| | Ala | Val | Leu | Glu 530 |
| | Ala | Val | Leu | Glu 535 |
| | Ala | Val | Leu | Glu 540 |
| | Ala | Val | Leu | Glu 545 |
| | Ala | Val | Leu | Glu 550 |
| | Ala | Val | Leu | Glu 555 |
| | Ala | Val | Leu | Glu 560 |
| | Ala | Val | Leu | Glu 565 |
| | Ala | Val | Leu | Glu 570 |
| | Ala | Val | Leu | Glu 575 |
| | Ala | Val | Leu | Glu 580 |
| | Ala | Val | Leu | Glu 585 |
| | Ala | Val | Leu | Glu 590 |
| | Ala | Val | Leu | Glu 595 |
| | Ala | Val | Leu | Glu 600 |
| | Ala | Val | Leu | Glu 605 |
| | Ala | Val | Leu | Glu 610 |
| | Ala | Val | Leu | Glu 615 |
| | Ala | Val | Leu | Glu 620 |

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640
 Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655
 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670
 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685
 Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700
 Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
 705 710 715 720
 Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
 725 730 735
 Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
 740 745 750
 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
 755 760 765
 Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
 770 775 780
 Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
 785 790 795 800
 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
 805 810 815
 Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
 820 825 830
 Ser Ala Lys Gly His His His His His His
 835 840

<210> 52

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 52

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Arg Glu Lys Thr Ala Leu
195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys

| | | | | | | | | | | | | | | |
|---------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------|
| 705 | | | | | 710 | | | | | 715 | | | | 720 |
| Arg | Gly | Tyr | Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro Asp |
| | | | | 725 | | | | | 730 | | | | | 735 |
| Leu | Asn | Ala | Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met Ala |
| | | | 740 | | | | | 745 | | | | | 750 | |
| Phe | Asn | Met | Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu Ala |
| | | 755 | | | | | 760 | | | | | 765 | | |
| Met | Val | Lys | Leu | Phe | Pro | Arg | Leu | Arg | Glu | Met | Gly | Ala | Arg | Met Leu |
| | 770 | | | | | 775 | | | | | 780 | | | |
| Leu | Gln | Val | Ala | Asn | Glu | Leu | Leu | Leu | Glu | Ala | Pro | Gln | Ala | Arg Ala |
| 785 | | | | | 790 | | | | | 795 | | | | 800 |
| Glu | Glu | Val | Ala | Ala | Leu | Ala | Lys | Glu | Ala | Met | Glu | Lys | Ala | Tyr Pro |
| | | | | 805 | | | | | 810 | | | | | 815 |
| Leu | Ala | Val | Pro | Leu | Glu | Val | Glu | Val | Gly | Met | Gly | Glu | Asp | Trp Leu |
| | | | 820 | | | | | 825 | | | | | 830 | |
| Ser | Ala | Lys | Gly | His | His | His | His | His | His | His | | | | |
| | | 835 | | | | | 840 | | | | | | | |
| <210> 53 | | | | | | | | | | | | | | |
| <211> 839 | | | | | | | | | | | | | | |
| <212> PRT | | | | | | | | | | | | | | |
| <213> Artificial Sequence | | | | | | | | | | | | | | |
| <220> | | | | | | | | | | | | | | |
| <223> Synthetic | | | | | | | | | | | | | | |
| <400> 53 | | | | | | | | | | | | | | |
| Met | Asn | Ser | Gly | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 |
| Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | His | Ala | Leu Lys |
| | | | 20 | | | | | 25 | | | | | 30 | |
| Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly Phe |
| | | 35 | | | | | 40 | | | | | 45 | | |

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60
 Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80
 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95
 Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
 100 105 110
 Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125
 Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140
 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160
 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
 Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510
 Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525
 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540
 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

| | | | | | | |
|-----------------------------------------------------------------|-------------------------------------------------|-----|--|-----|--|-----|
| 545 | | 550 | | 555 | | 560 |
| Leu His Thr Arg | Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | | | | |
| | 565 | | | 570 | | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | | | |
| | 580 | | | 585 | | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | | | | | |
| | 595 | | | 600 | | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | | | |
| | 610 | | | 615 | | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | | | | | |
| | 625 | | | 630 | | 635 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | | | | | | |
| | 645 | | | 650 | | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | | | | | | |
| | 660 | | | 665 | | 670 |
| Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu | | | | | | |
| | 675 | | | 680 | | 685 |
| Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val | | | | | | |
| | 690 | | | 695 | | 700 |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr | | | | | | |
| | 705 | | | 710 | | 715 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala | | | | | | |
| | 725 | | | 730 | | 735 |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met | | | | | | |
| | 740 | | | 745 | | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | | | | | |
| | 755 | | | 760 | | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | | | | | |
| | 770 | | | 775 | | 780 |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | | | | | | |
| | 785 | | | 790 | | 795 |
| | | | | | | 800 |

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 54

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 54

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Glu Thr Glu Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

| | | | | | | |
|-----------------------------------------------------------------|-----------------------------------------------------|-------------------------|--|-----|-----|-----|
| 385 | | 390 | | 395 | | 400 |
| Glu Glu Ala Gly | Glu Arg Ala Ala Leu Ser | Glu Arg Leu Phe Ala Asn | | | | |
| | 405 | 410 | | | 415 | |
| Leu Leu Lys Arg | Leu Glu Gly Glu Glu Arg | Leu Leu Trp Leu Tyr Arg | | | | |
| | 420 | 425 | | | 430 | |
| Glu Val Glu Arg | Pro Leu Ser Ala Val Leu Ala His | Met Glu Ala Thr | | | | |
| | 435 | 440 | | | 445 | |
| Gly Val Arg Leu Asp | Val Ala Tyr Leu Arg Ala Leu Ser | Leu Glu Val | | | | |
| | 450 | 455 | | 460 | | |
| Ala Glu Glu Ile Ala Arg | Leu Glu Ala Glu Val Phe Arg | Leu Ala Gly | | | | |
| | 465 | 470 | | 475 | | 480 |
| His Pro Phe Asn | Leu Asn Ser Arg Asp Gln Leu Glu Arg | Val Leu Phe | | | | |
| | 485 | 490 | | | 495 | |
| Asp Glu Leu Arg | Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr | Gly Lys | | | | |
| | 500 | 505 | | | 510 | |
| Arg Ser Ser Ser | Ala Ala Val Leu Glu Ala Leu Arg | Glu Ala His Pro | | | | |
| | 515 | 520 | | | 525 | |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg | Glu Leu Thr Lys Leu Lys Ser | | | | | |
| | 530 | 535 | | 540 | | |
| Thr Tyr Ile Asp | Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | | | | |
| | 545 | 550 | | 555 | | 560 |
| Leu His Thr Arg | Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg | Leu Ser | | | | |
| | 565 | 570 | | | 575 | |
| Ser Ser Asp | Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | | | | |
| | 580 | 585 | | | 590 | |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly | Trp Leu Leu Val | | | | | |
| | 595 | 600 | | 605 | | |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | | | | | |
| | 610 | 615 | | 620 | | |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | | | | | |
| | 625 | 630 | | 635 | | 640 |

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His
835

<210> 55

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 55

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Asn Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510

Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala

| | | | | | |
|-----------------------------------------------------------------|-----|---|-----|--|-----|
| | 725 | | 730 | | 735 |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met | 740 | | 745 | | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | 755 | | 760 | | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | 770 | | 775 | | 780 |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | 785 | | 790 | | 795 |
| | | | | | 800 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | 805 | | 810 | | 815 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | 820 | | 825 | | 830 |
| Glu His His His His His His | 835 | | | | |
| <210> 56 | | | | | |
| <211> 839 | | | | | |
| <212> PRT | | | | | |
| <213> Artificial Sequence | | | | | |
| <220> | | | | | |
| <223> Synthetic | | | | | |
| <400> 56 | | | | | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | 1 | 5 | 10 | | 15 |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | 20 | | 25 | | 30 |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | 35 | | 40 | | 45 |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | 50 | | 55 | | 60 |

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80
 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95
 Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
 100 105 110
 Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125
 Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140
 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160
 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Gln Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510

Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

| 565 | | | | | | | | | | 570 | | | | 575 | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | |
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
| Ala | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | |

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His
835

<210> 57

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 57

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175
 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190
 Asn Leu Pro Gly Val Lys Gly Met Gly Glu Lys Thr Gly Arg Lys Leu
 195 200 205
 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220
 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240
 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn

| | | |
|------------------------------------------------------------------------------------|-----|-----|
| 405 | 410 | 415 |
| Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 430 | | |
| Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445 | | |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460 | | |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480 | | |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495 | | |
| Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510 | | |
| Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525 | | |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 535 540 | | |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560 | | |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575 | | |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590 | | |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605 | | |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620 | | |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640 | | |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655 | | |

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 58

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 58

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Asn Thr Ala Arg Lys Leu
195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255
 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285
 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300
 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320
 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335
 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350
 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365
 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380
 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400
 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415
 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445
 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460
 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510

Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

| | | |
|-----------------------------------------------------------------|---------------------|-----|
| 740 | 745 | 750 |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys | | |
| 755 | 760 | 765 |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val | | |
| 770 | 775 | 780 |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val | | |
| 785 | 790 | 800 |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val | | |
| | 805 | 810 |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys | | |
| | 820 | 825 |
| | | 830 |
| Glu His His His His His His | | |
| 835 | | |
| <210> | 59 | |
| <211> | 839 | |
| <212> | PRT | |
| <213> | Artificial Sequence | |
| <220> | | |
| <223> | Synthetic | |
| <400> | 59 | |
| Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu | | |
| 1 | 5 | 10 |
| | | 15 |
| Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys | | |
| | 20 | 25 |
| | | 30 |
| Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe | | |
| | 35 | 40 |
| | | 45 |
| Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile | | |
| | 50 | 55 |
| | | 60 |
| Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly | | |
| 65 | 70 | 75 |
| | | 80 |

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Pro Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys
 500 505 510

Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

| | | |
|------------------------------------------------------------------------------------|-----|-----|
| 580 | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605 | | |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620 | | |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640 | | |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655 | | |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670 | | |
| Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685 | | |
| Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700 | | |
| Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720 | | |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735 | | |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750 | | |
| Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765 | | |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 775 780 | | |
| Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800 | | |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815 | | |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830 | | |

Glu His His His His His His
835

<210> 60

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 60

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg

| | | |
|-----------------------------------------------------------------|-------------------------|-------------|
| 420 | 425 | 430 |
| Glu Val Glu Arg Pro Leu Ser | Ala Val Leu Ala His Met | Glu Ala Thr |
| 435 | 440 | 445 |
| Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val | | |
| 450 | 455 | 460 |
| Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly | | |
| 465 | 470 | 475 |
| His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe | | |
| 485 | 490 | 495 |
| Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys | | |
| 500 | 505 | 510 |
| Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro | | |
| 515 | 520 | 525 |
| Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser | | |
| 530 | 535 | 540 |
| Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg | | |
| 545 | 550 | 555 |
| Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser | | |
| 565 | 570 | 575 |
| Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly | | |
| 580 | 585 | 590 |
| Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val | | |
| 595 | 600 | 605 |
| Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser | | |
| 610 | 615 | 620 |
| Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His | | |
| 625 | 630 | 635 |
| Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp | | |
| 645 | 650 | 655 |
| Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr | | |
| 660 | 665 | 670 |

Gly Met Ser Ala His Ala Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Glu His His His His His His
 835

<210> 61

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 61

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

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Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn
 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His
 625 630 635 640

Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr
 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala
 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
 755 760 765

Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val
 770 775 780

Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val
 785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val
 805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys
 820 825 830

Gly His His His His His His
 835

<210> 62

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 62

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr

| 100 | | | | | 105 | | | | | 110 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Leu | Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Thr | Leu |
| | 115 | | | | | | 120 | | | | | 125 | | | |
| Ala | Lys | Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Arg | Asp | Leu | Tyr | Gln | Leu | Val | Ser | Asp | Arg | Val | Ala | Val | Leu | His |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Pro | Glu | Gly | His | Leu | Ile | Thr | Pro | Glu | Trp | Leu | Trp | Glu | Lys | Tyr | Gly |
| | | | 165 | | | | | | 170 | | | | | 175 | |
| Leu | Arg | Pro | Glu | Gln | Trp | Val | Asp | Phe | Arg | Ala | Leu | Val | Gly | Asp | Pro |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Ser | Asp | Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Lys | Leu | Leu | Lys | Glu | Trp | Gly | Ser | Leu | Glu | Asn | Leu | Leu | Lys | Asn | Leu |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Asp | Arg | Val | Lys | Pro | Glu | Asn | Val | Arg | Glu | Lys | Ile | Lys | Ala | His | Leu |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Glu | Asp | Leu | Arg | Leu | Ser | Leu | Glu | Leu | Ser | Arg | Val | Arg | Thr | Asp | Leu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Pro | Leu | Glu | Val | Asp | Leu | Ala | Gln | Gly | Arg | Glu | Pro | Asp | Arg | Glu | Gly |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Arg | Ala | Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Phe | Gly | Leu | Leu | Glu | Ala | Pro | Ala | Pro | Leu | Glu | Glu | Ala | Pro | Trp | Pro |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Pro | Pro | Glu | Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Pro | Glu | Pro |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | |
| Met | Trp | Ala | Glu | Leu | Lys | Ala | Leu | Ala | Ala | Cys | Arg | Gly | Gly | Arg | Val |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| His | Arg | Ala | Pro | Glu | Pro | Tyr | Lys | Ala | Leu | Arg | Asp | Leu | Lys | Glu | Ala |
| | | | 340 | | | | | 345 | | | | | 350 | | |

Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly
 355 360 365

Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu
 405 410 415

Phe Ala Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp
 420 425 430

Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser
 450 455 460

Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp
 595 600 605

Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg
625 630 635 640

Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu
645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly
660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
675 680 685

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg
705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
725 730 735

Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
755 760 765

Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu
770 775 780

Leu Gln Val Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala
785 790 795 800

Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro
805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu
820 825 830

Ser Ala Lys Glu His His His His His His
835 840

<210> 63

<211> 835

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 63

Met Glu Phe Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu
20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe
35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu
65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu
100 105 110

Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala Lys
115 120 125

Lys Ala Glu Arg Glu Gly Met Glu Val Arg Ile Leu Thr Gly Asp Arg
130 135 140

Asp Phe Phe Gln Leu Leu Ser Glu Lys Val Ser Val Leu Leu Pro Asp
145 150 155 160

Gly Thr Leu Val Thr Pro Lys Asp Val Gln Glu Lys Tyr Gly Val Pro
165 170 175

Pro Glu Arg Trp Val Asp Phe Arg Ala Leu Thr Gly Asp Arg Ser Asp
180 185 190

Asn Ile Pro Gly Val Ala Gly Ile Gly Glu Lys Thr Ala Leu Arg Leu
 195 200 205

Leu Ala Glu Trp Gly Ser Val Glu Asn Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Val Lys Pro Asp Ser Leu Arg Arg Lys Ile Glu Ala His Leu Glu Asp
 225 230 235 240

Leu His Leu Ser Leu Asp Leu Ala Arg Ile Arg Thr Asp Leu Pro Leu
 245 250 255

Glu Val Asp Phe Lys Ala Leu Arg Arg Arg Thr Pro Asp Leu Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Glu Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Gly Gly Glu Lys Pro Arg Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Leu Leu Ser Arg Lys Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Leu Ala Leu Ala Ala Ala Ser Glu Gly Arg Val
 325 330 335

His Arg Ala Thr Ser Pro Val Glu Ala Leu Ala Asp Leu Lys Glu Ala
 340 345 350

Arg Gly Phe Leu Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly
 355 360 365

Val Ala Leu Asp Pro Thr Asp Asp Pro Leu Leu Val Ala Tyr Leu Leu
 370 375 380

Asp Pro Ala Asn Thr His Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Phe Thr Glu Asp Ala Ala Glu Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

Phe Gln Asn Leu Phe Lys Arg Leu Ser Glu Lys Leu Leu Trp Leu Tyr
 420 425 430

Gln Glu Val Glu Arg Pro Leu Ser Arg Val Leu Ala His Met Glu Ala
 435 440 445

Arg Gly Val Arg Leu Asp Val Pro Leu Leu Glu Ala Leu Ser Phe Glu
450 455 460

Leu Glu Lys Glu Met Glu Arg Leu Glu Gly Glu Val Phe Arg Leu Ala
465 470 475 480

Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu
485 490 495

Phe Asp Glu Leu Gly Leu Thr Pro Val Gly Arg Thr Gln Lys Thr Gly
500 505 510

Lys Arg Ser Thr Ala Gln Gly Ala Leu Glu Ala Leu Arg Gly Ala His
515 520 525

Pro Ile Val Glu Leu Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys
530 535 540

Ser Thr Tyr Leu Asp Pro Leu Pro Arg Leu Val His Pro Arg Thr Gly
545 550 555 560

Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu
565 570 575

Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu
580 585 590

Gly Gln Arg Ile Arg Lys Ala Phe Val Ala Glu Glu Gly Trp Leu Leu
595 600 605

Leu Ala Ala Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu
610 615 620

Ser Gly Asp Glu Asn Leu Lys Arg Val Phe Arg Glu Gly Lys Asp Ile
625 630 635 640

His Thr Glu Thr Ala Ala Trp Met Phe Gly Leu Asp Pro Ala Leu Val
645 650 655

Asp Pro Lys Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu
660 665 670

Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Gly Ile Asp Tyr
675 680 685

Lys Glu Ala Glu Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys

| | | |
|-----------------------------------------------------------------|---------------------|-------------|
| 690 | 695 | 700 |
| Val Arg Ala Trp Ile Glu Arg Thr Leu Glu Glu Gly Arg Thr Arg Gly | | |
| 705 | 710 | 715 720 |
| Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Ala | | |
| | 725 | 730 735 |
| Ser Arg Val Arg Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn | | |
| | 740 | 745 750 |
| Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Ile Ala Met Val | | |
| | 755 | 760 765 |
| Lys Leu Phe Pro Arg Leu Lys Pro Leu Gly Ala His Leu Leu Leu Gln | | |
| | 770 | 775 780 |
| Val His Asn Glu Leu Val Leu Glu Val Pro Glu Asp Arg Ala Glu Glu | | |
| | 785 | 790 795 800 |
| Ala Lys Ala Leu Val Lys Glu Val Met Glu Asn Ala Tyr Pro Leu Asp | | |
| | 805 | 810 815 |
| Val Pro Leu Glu Val Glu Val Gly Val Gly Arg Asp Trp Leu Glu Ala | | |
| | 820 | 825 830 |
| Lys Gln Asp | | |
| | 835 | |
| <210> | 64 | |
| <211> | 832 | |
| <212> | PRT | |
| <213> | Artificial Sequence | |
| <220> | | |
| <223> | Synthetic | |
| <400> | 64 | |
| Met Glu Phe Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val | | |
| 1 | 5 | 10 15 |
| Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu | | |
| | 20 | 25 30 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe | Ala | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Ser | Leu | Leu | Lys | Ala | Leu | Arg | Glu | Asp | Gly | Asp | Val | Val | Ile | Val | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Phe | Asp | Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Gln | Thr | Tyr | Glu | Ala | Tyr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Lys | Ala | Gly | Arg | Ala | Pro | Thr | Pro | Glu | Asp | Phe | Pro | Arg | Gln | Leu | Ala |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Leu | Ile | Lys | Glu | Met | Val | Asp | Leu | Leu | Gly | Leu | Glu | Arg | Leu | Glu | Val |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Pro | Gly | Phe | Glu | Ala | Asp | Asp | Val | Leu | Ala | Thr | Leu | Ala | Lys | Lys | Ala |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Arg | Asp | Leu |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Tyr | Gln | Leu | Leu | Ser | Glu | Arg | Ile | Ser | Ile | Leu | His | Pro | Glu | Gly | Tyr |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Leu | Ile | Thr | Pro | Glu | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Lys | Pro | Ser |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Gln | Trp | Val | Asp | Tyr | Arg | Ala | Leu | Ala | Gly | Asp | Pro | Ser | Asp | Asn | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Ala | Lys | Leu | Ile | Arg |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Glu | Trp | Gly | Ser | Leu | Glu | Asn | Leu | Leu | Lys | His | Leu | Glu | Gln | Val | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Pro | Ala | Ser | Val | Arg | Glu | Lys | Ile | Leu | Ser | His | Met | Glu | Asp | Leu | Lys |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Leu | Ser | Leu | Glu | Leu | Ser | Arg | Val | His | Thr | Asp | Leu | Leu | Leu | Gln | Val |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Asp | Phe | Ala | Arg | Arg | Arg | Glu | Pro | Asp | Arg | Glu | Gly | Leu | Lys | Ala | Phe |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |

Glu Ser Pro Val Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
 290 295 300

Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu
 305 310 315 320

Leu Asn Ala Leu Ala Ala Ala Trp Glu Gly Arg Val Tyr Arg Ala Glu
 325 330 335

Asp Pro Leu Glu Ala Leu Arg Gly Leu Gly Glu Val Arg Gly Leu Leu
 340 345 350

Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly Ile Ala Leu Ala
 355 360 365

Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
 370 375 380

Thr Ala Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
 385 390 395 400

Glu Ala Gly Glu Arg Ala Leu Leu Ser Glu Arg Leu Tyr Ala Ala Leu
 405 410 415

Leu Lys Arg Leu Lys Gly Glu Glu Arg Leu Leu Trp Leu Tyr Glu Glu
 420 425 430

Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly
 435 440 445

Val Arg Leu Asp Val Ala Tyr Leu Lys Ala Leu Ser Leu Glu Val Glu
 450 455 460

Ala Glu Ile Arg Arg Phe Glu Glu Glu Val His Arg Leu Ala Gly His
 465 470 475 480

Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Ile Phe Asp
 485 490 495

Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys Arg
 500 505 510

Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile
 515 520 525

Val Asp Arg Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys Gly Thr

| | | | | | |
|---------|---------|---------|---------|---------|---------|
| 530 | | 535 | | 540 | |
| Tyr 545 | Ile | Asp | Pro | Leu | Pro 550 |
| | Ala | Leu | Val | His | Pro 555 |
| | Lys | Thr | Asn | Arg | Leu 560 |
| His | Thr | Arg | Phe | Asn 565 | Gln |
| | Thr | Ala | Thr | Ala 570 | Thr |
| | Gly | Arg | Leu | Ser 575 | Ser |
| Ser | Asp | Pro | Asn 580 | Leu | Gln |
| | Asn | Ile | Pro 585 | Val | Arg |
| | Thr | Pro | Leu 590 | Gly | Gln |
| Arg | Ile | Arg 595 | Ala | Phe | Val |
| | Ala 600 | Glu | Glu | Gly | Trp |
| | Arg 605 | Leu | Val | Val | |
| Leu | Asp 610 | Tyr | Ser | Gln | Ile |
| | Glu 615 | Leu | Arg | Val | Leu |
| | Ala 620 | His | Leu | Ser | Gly |
| Asp 625 | Glu | Asn | Leu | Ile | Arg |
| | Val 630 | Phe | Gln | Glu | Gly 635 |
| | Gln | Asp | Ile | His | Thr 640 |
| Gln | Thr | Ala | Ser | Trp 645 | Met |
| | Phe | Gly | Val | Pro 650 | Pro |
| | Glu | Ala | Val | Asp 655 | Ser |
| Leu | Met | Arg | Arg | Ala | Ala |
| | Lys | Thr | Ile 665 | Asn | Phe |
| | Gly | Val | Leu | Tyr | Gly 670 |
| Met | Ser | Ala 675 | His | Arg | Leu |
| | Ser | Gly 680 | Glu | Leu | Ala |
| | Ile | Pro 685 | Tyr | Glu | Glu |
| Ala | Val 690 | Ala | Phe | Ile | Glu |
| | Arg 695 | Tyr | Phe | Gln | Ser |
| | Tyr 700 | Pro | Lys | Val | Arg |
| Ala | Trp | Ile | Glu | Lys | Thr |
| 705 | | Leu | Ala | Glu | Gly |
| | Arg 710 | Glu | Arg | Gly 715 | Arg |
| | Glu | Arg | Gly | Tyr | Val |
| 720 | | | | | |
| Glu | Thr | Leu | Phe | Gly 725 | Arg |
| | Arg | Arg | Tyr | Val 730 | Pro |
| | Asp | Leu | Ala | Ser 735 | Arg |
| Val | Lys | Ser | Ile 740 | Arg | Glu |
| | Ala | Ala | Glu 745 | Arg | Met |
| | Ala | Phe | Asn 750 | Met | Pro |
| Val | Gln | Gly | Thr | Ala | Ala |
| 755 | | Asp | Leu | Met | Lys |
| | Leu | Ala | Met | Val | Lys |
| | Leu | Gln | Val | His | |
| 760 | | | | | |
| 765 | | | | | |
| Phe | Pro | Arg | Leu | Gln | Glu |
| 770 | | Leu | Gly | Ala | Arg |
| | Met | Leu | Leu | Gln | Val |
| | His | | | | |
| 775 | | | | | |
| 780 | | | | | |

Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Gln Ala Glu Glu Val Ala
 785 790 795 800

Gln Glu Ala Lys Arg Thr Met Glu Glu Val Trp Pro Leu Lys Val Pro
 805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Ala
 820 825 830

<210> 65

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 65

Met Asn Ser Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val
 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu
 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe
 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu
 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu
 100 105 110

Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala Lys
 115 120 125

Lys Ala Glu Arg Glu Gly Met Glu Val Arg Ile Leu Thr Gly Asp Arg
 130 135 140

Asp Phe Phe Gln Leu Leu Ser Glu Lys Val Ser Val Leu Leu Pro Asp
 145 150 155 160

Gly Thr Leu Val Thr Pro Lys Asp Val Gln Glu Lys Tyr Gly Val Pro
 165 170 175

Pro Glu Arg Trp Val Asp Phe Arg Ala Leu Thr Gly Asp Arg Ser Asp
 180 185 190

Asn Ile Pro Gly Val Ala Gly Ile Gly Glu Lys Thr Ala Leu Arg Leu
 195 200 205

Leu Ala Glu Trp Gly Ser Val Glu Asn Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Val Lys Pro Asp Ser Leu Arg Arg Lys Ile Glu Ala His Leu Glu Asp
 225 230 235 240

Leu His Leu Ser Leu Asp Leu Ala Arg Ile Arg Thr Asp Leu Pro Leu
 245 250 255

Glu Val Asp Phe Lys Ala Leu Arg Arg Arg Thr Pro Asp Leu Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Glu Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Gly Gly Glu Lys Pro Arg Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Leu Leu Ser Arg Lys Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Leu Ala Leu Ala Ala Ser Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe
690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala
755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
770 775 780

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
820 825 830

Ser Ala Lys Gly His His His His His His
835 840

<210> 66

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 66

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val
1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu
20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys
35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val
50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr
65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala
85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala
115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu
130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr
145 150 155 160

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser
165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile
180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg
195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys
210 215 220

Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys
 225 230 235 240
 Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Leu Gln Val
 245 250 255
 Asp Phe Ala Arg Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe
 260 265 270
 Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu
 275 280 285
 Glu Ser Pro Val Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
 290 295 300
 Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu
 305 310 315 320
 Leu Asn Ala Leu Ala Ala Ala Trp Gly Gly Arg Val His Arg Ala Ala
 325 330 335
 Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu
 340 345 350
 Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val
 355 360 365
 Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
 370 375 380
 Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
 385 390 395 400
 Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn Leu
 405 410 415
 Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His Glu
 420 425 430
 Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly
 435 440 445
 Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala
 450 455 460
 Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly His
 465 470 475 480

| | | | | | | | | | | | | | | | |
|------------|-----|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Val 65 | Val | Phe | Asp | Ala | Lys 70 | Ala | Pro | Ser | Phe | Arg 75 | His | Glu | Ala | Tyr | Glu 80 |
| Ala | Tyr | Lys | Ala | Gly 85 | Arg | Ala | Pro | Thr | Pro 90 | Glu | Asp | Phe | Pro | Arg 95 | Gln |
| Leu | Ala | Leu | Val 100 | Lys | Arg | Leu | Val | Asp 105 | Leu | Leu | Gly | Leu | Val 110 | Arg | Leu |
| Glu | Ala | Pro 115 | Gly | Tyr | Glu | Ala | Asp 120 | Asp | Val | Leu | Gly | Thr 125 | Leu | Ala | Lys |
| Lys 130 | Ala | Glu | Arg | Glu | Gly | Met 135 | Glu | Val | Arg | Ile | Leu 140 | Thr | Gly | Asp | Arg |
| Asp 145 | Phe | Phe | Gln | Leu | Leu 150 | Ser | Glu | Lys | Val | Ser 155 | Val | Leu | Leu | Pro | Asp 160 |
| Gly | Thr | Leu | Val | Thr 165 | Pro | Lys | Asp | Val | Gln 170 | Glu | Lys | Tyr | Gly | Val 175 | Pro |
| Pro | Glu | Arg | Trp 180 | Val | Asp | Phe | Arg | Ala 185 | Leu | Thr | Gly | Asp | Arg 190 | Ser | Asp |
| Asn | Ile | Pro 195 | Gly | Val | Ala | Gly | Ile 200 | Gly | Glu | Lys | Thr | Ala 205 | Leu | Arg | Leu |
| Leu 210 | Ala | Glu | Trp | Gly | Ser | Val 215 | Glu | Asn | Leu | Leu | Lys 220 | Asn | Leu | Asp | Arg |
| Val 225 | Lys | Pro | Asp | Ser | Leu 230 | Arg | Arg | Lys | Ile | Glu 235 | Ala | His | Leu | Glu | Asp 240 |
| Leu | His | Leu | Ser | Leu 245 | Asp | Leu | Ala | Arg | Ile 250 | Arg | Thr | Asp | Leu | Pro 255 | Leu |
| Glu | Val | Asp | Phe 260 | Lys | Ala | Leu | Arg | Arg 265 | Arg | Thr | Pro | Asp | Leu 270 | Glu | Gly |
| Leu | Arg | Ala 275 | Phe | Leu | Glu | Glu 280 | Leu | Glu | Phe | Gly | Ser | Leu 285 | Leu | His | Glu |
| Phe 290 | Gly | Leu | Leu | Gly | Gly | Glu 295 | Lys | Pro | Arg | Glu | Glu 300 | Ala | Pro | Trp | Pro |
| Pro 305 | Pro | Glu | Gly | Ala | Phe 310 | Val | Gly | Phe | Leu | Leu 315 | Ser | Arg | Lys | Glu | Pro 320 |

Met Trp Ala Glu Leu Leu Ala Leu Ala Ala Ala Ser Gly Gly Arg Val
 325 330 335
 His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala
 340 345 350
 Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly
 355 360 365
 Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380
 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400
 Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu
 405 410 415
 Phe Ala Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp
 420 425 430
 Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met
 435 440 445
 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser
 450 455 460
 Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg
 465 470 475 480
 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495
 Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys
 500 505 510
 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525
 Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys
 530 535 540
 Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg
 545 550 555 560
 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| 565 | | | | | | | | 570 | | | | | 575 | | | | |
| Arg | Leu | Ser | Ser | Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| Pro | Leu | Gly | Gln | Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | |
| Leu | Leu | Val | Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| His | Leu | Ser | Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Asp | Ile | His | Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| Ala | Val | Asp | Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| Val | Leu | Tyr | Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | |
| Pro | Tyr | Glu | Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | |
| Pro | Lys | Val | Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| Arg | Gly | Tyr | Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| Leu | Glu | Ala | Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | |
| Phe | Asn | Met | Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| Met | Val | Lys | Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | |
| Leu | Gln | Val | Ala | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| Glu | Ala | Val | Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | |

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu
820 825 830

Ser Ala Lys Glu His His His His His His
835 840

<210> 68

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 68

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val
1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu
20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys
35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val
50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr
65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala
85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala
115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu
130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr
145 150 155 160

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser
 165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile
 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg
 195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys
 210 215 220

Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys
 225 230 235 240

Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Leu Gln Val
 245 250 255

Asp Phe Ala Arg Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe
 260 265 270

Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu
 275 280 285

Glu Ser Pro Val Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
 290 295 300

Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu
 305 310 315 320

Leu Asn Ala Leu Ala Ala Ala Trp Gly Gly Arg Val His Arg Ala Pro
 325 330 335

Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu
 340 345 350

Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro
 355 360 365

Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
 370 375 380

Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
 385 390 395 400

Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| Leu | Lys | Arg | Leu | Glu | Gly | Glu | Glu | Arg | Leu | Leu | Trp | Leu | Tyr | Arg | Glu | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| Val | Glu | Arg | Pro | Leu | Ser | Ala | Val | Leu | Ala | His | Met | Glu | Ala | Thr | Gly | | |
| | | 435 | | | | | 440 | | | | | 445 | | | | | |
| Val | Arg | Leu | Asp | Val | Ala | Tyr | Leu | Arg | Ala | Leu | Ser | Leu | Glu | Val | Ala | | |
| | 450 | | | | | 455 | | | | | 460 | | | | | | |
| Glu | Glu | Ile | Ala | Arg | Leu | Glu | Ala | Glu | Val | Phe | Arg | Leu | Ala | Gly | His | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| Pro | Phe | Asn | Leu | Asn | Ser | Arg | Asp | Gln | Leu | Glu | Arg | Val | Leu | Phe | Asp | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| Glu | Leu | Gly | Leu | Pro | Ala | Ile | Lys | Lys | Thr | Gln | Lys | Thr | Gly | Lys | Arg | | |
| | | | 500 | | | | | 505 | | | | | 510 | | | | |
| Ser | Thr | Ser | Ala | Ala | Val | Leu | Glu | Ala | Leu | Arg | Glu | Ala | His | Pro | Ile | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | |
| Val | Glu | Lys | Ile | Leu | Gln | Tyr | Arg | Glu | Leu | Thr | Lys | Leu | Lys | Ser | Thr | | |
| | 530 | | | | | 535 | | | | | 540 | | | | | | |
| Tyr | Ile | Asp | Pro | Leu | Pro | Asp | Leu | Ile | His | Pro | Arg | Thr | Gly | Arg | Leu | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| His | Thr | Arg | Phe | Asn | Gln | Thr | Ala | Thr | Ala | Thr | Gly | Arg | Leu | Ser | Ser | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | |
| Ser | Asp | Pro | Asn | Leu | Gln | Asn | Ile | Pro | Val | Arg | Thr | Pro | Leu | Gly | Gln | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| Arg | Ile | Arg | Arg | Ala | Phe | Ile | Ala | Glu | Glu | Gly | Trp | Leu | Leu | Val | Ala | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | |
| Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser | Gly | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | |
| Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His | Thr | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp | Pro | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |

Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly
660 665 670

Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu
675 680 685

Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg
690 695 700

Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val
705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg
725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu
755 760 765

Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala
770 775 780

Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala
785 790 795 800

Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro
805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Glu
820 825 830

His His His His His His
835

<210> 69

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 69
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| cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgcca taggctctcc | 2040 |
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| gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcgc ccacgaggcc | 240 |
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| ctcatcaagg agctggtgga cctcctgggg tttaccgcgc tcgagggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgagggtgcgc | 420 |
| atcctcaccg ccgaccgcga cctctaccaa ctcgctctccg accgcgtcgc cgtcctccac | 480 |
| cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |
| cagtgggttg acttccgcgc cctcgtgggg gaccctccg acaacctccc cggggtcaag | 600 |
| ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc | 660 |
| ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg | 720 |

| | | | | | | |
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| gaagacctca | ggctctcctt | ggagctctcc | cggtgctgca | ccgacctccc | cctggaggtg | 780 |
| gacctcgccc | aggggcggga | gcccgaccgg | gaggggctta | gggccttcct | ggagagggctg | 840 |
| gagttcgga | gcctcctcca | cgagttcggc | ctcctggagg | cccccgcccc | cctggaggag | 900 |
| gccccctggc | ccccgccgga | aggggccttc | gtgggcttcg | tcctctcccc | ccccgagccc | 960 |
| atgtgggcgg | agcttaaagc | cctggccgcc | tgcaggggcg | gccgcgtcca | ccgggcccccc | 1020 |
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| agcgttctgg | ccctgagggg | aggccttggc | ctcccccccc | gcgacgaccc | catgctcctc | 1140 |
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| gagctagggc | ttcccgccat | cggcaagacg | gagaagaccg | gcaagcgctc | caccagcgcc | 1560 |
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| gccttcatcg | ccgaggaggg | gtggctattg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| aggggtgctg | cccacctctc | cggcgacgag | aacctgatcc | gggtcttcca | ggagggggcg | 1920 |
| gacatccaca | cggagaccgc | cagctggatg | ttcggcgctc | cccgggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gaccatcaac | ttcgggggtc | tctacggcat | gtcggcccac | 2040 |
| cgcctctccc | aggagctagc | catcccttac | gaggaggccc | aggccttcat | tgagcgctac | 2100 |
| tttcagagct | tccccagggt | gcgggcctgg | attgagaaga | ccctggagga | gggcaggagg | 2160 |
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<211> 2517

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<213> Artificial Sequence

<220>

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<400> 71

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| | | | | | | |
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| gaggccctac | gggaggccca | ccccatcgtg | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccctc | ccaagcctcg | tccacccgag | gacggggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttgggcccaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggag | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgctc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcccga | agaccatcaa | cttcgggggtc | ctctacggca | tgctggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
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| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
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| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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<400> 72

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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggcccggg | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |

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| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcac | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caagggtgcg | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
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| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
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| gccgaggcgg | gttgggcgtt | ggtggccctg | gactatagcc | agatagagct | ccgcgtcctc | 1860 |
| gcccacctct | ccggggacga | aaacctgac | agggctcttc | aggaggggaa | ggacatccac | 1920 |
| accagaccg | caagctggat | gttcggcgtc | ccccggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agacggtgaa | cttcggcgtc | ctctacggca | tgtccgcca | taggctctcc | 2040 |
| caggagcttg | ccatccccta | cgaggaggcg | gtggccttta | tagagcgcta | cttccaaagc | 2100 |
| ttccccaagg | tgcgggcctg | gatagaaaag | accctggagg | aggggaggaa | gcggggctac | 2160 |

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| ctcatgaagc | tcgccatggt | gaagctcttc | ccccgcctcc | gggagatggg | ggcccgcacg | 2340 |
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| gtcctggccc | atatggaggc | cacgggggtg | cgcttgacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
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| cttcccgcc | tcggcaagac | ggagaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
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| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcgggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
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| ctccttcagg | tccacaacga | gctggctctc | gaggcccca | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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<211> 2517

<212> DNA

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<220>

<223> Synthetic

<400> 74

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| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
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| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg | 720 |
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| ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc | 1740 |
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| acggagaccg ccagctggat gttcggcgtc ccccgaggag ccgtggaccc cctgatgcgc | 1980 |
| cgggaggcca agaccatcaa cttcggggtc ctctacggca tgcggccca ccgcctctcc | 2040 |
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| ctccttcagg tccacaacga gctggtcctc gaggcccaaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggagggtg | 2460 |
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<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 75

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| ccggtgcagg cggctacagg cttcgccaag agcctcctca aggcctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |

| | | | | | | |
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| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcctt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
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| ctggaccctt | cgaacaccac | ccccgagggg | gtggcgccgc | gctacggggg | ggagtggacg | 1200 |
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| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgata | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
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| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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<212> DNA

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<220>

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| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg | 1860 |
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| gcccggctgg ccaaggagggt catggagggg gtgtatcccc tggccgtgcc cctggagggtg | 2460 |
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<211> 2526

<212> DNA

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<220>

<223> Synthetic

<400> 77

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| gaaccggtgc aggcggtcta cggtctcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaagccc cctccttcg ccacgaggcc | 240 |
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| | |
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| gaggccgtgg cccggctggc caaggaggtc atggaggggg tgtatcccct ggccgtgccc | 2460 |
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<210> 78

<211> 2526

<212> DNA

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<223> Synthetic

<400> 78

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| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcg ccacgaggcc | 240 |
| tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc | 300 |
| ctcatcaagg agctggtgga cctcctgggg tttaccgcgc tcgagggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcggaag aggaggggta cgaggtgcgc | 420 |
| atcctcaccg ccgaccgcga cctctaccaa ctctgtctcg accgcgtcgc cgtcctccac | 480 |
| cccaggggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |
| cagtgggtgg acttccgcgc cctcgtgggg gaccctccg acaacctccc cggggtcaag | 600 |
| ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc | 660 |
| ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggccccacctg | 720 |
| gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggagggtg | 780 |
| gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg | 840 |
| gagttcggca gcctcctcca cgagttcggc ctctggagg cccccgcccc cctggaggag | 900 |
| gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc | 960 |

| | | | | | | |
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| atgtgggagg | agcttaaagc | cctggccgac | tgcaggggag | gccgcgtcca | ccgggcccc | 1020 |
| gagccttata | aagccctcag | ggacctgaag | gaggcgagg | ggcttctcgc | caaagacctg | 1080 |
| agcgttcttg | ccctgaggga | aggccttggc | ctcccgcccg | gcgacgaccc | catgctcctc | 1140 |
| gcctacctcc | tggacccttc | gaacaccacc | cccgaggggg | tggcccgagg | ctacggcgagg | 1200 |
| gagtggacgg | aggaggcgagg | ggagcgaggc | gccctttccg | agaggctctt | cgccaacctg | 1260 |
| tgggggaggc | ttgaggggga | ggagaggctc | ctttggcttt | accgggagggt | ggagaggccc | 1320 |
| ctttccgctg | tccctggccca | tatggaggcc | acgggggtgc | gcctggacgt | ggcctatctc | 1380 |
| agggccttgt | ccctggagggt | ggccgaggag | atcgcccgcc | tcgaggccga | ggtcttccgc | 1440 |
| ctggccggcc | accccttcaa | cctcaactcc | cgggaccagc | tggaaagggt | cctctttgac | 1500 |
| gagctagggc | ttcccgccat | cggcaagacg | gagaagaccg | gcaagcgctc | caccagcgcc | 1560 |
| gccgtcctgg | aggccctccg | cgaggcccac | cccatcgtag | agaagatcct | gcagtaccgg | 1620 |
| gagctcacca | agctgaagag | cacctacatt | gaccccttgc | cggacctcat | ccaccccagg | 1680 |
| acgggcccgc | tccacacccg | cttcaaccag | acggccacgg | ccacgggcag | gctaagtagc | 1740 |
| tccgatccca | acctccagaa | catccccgtc | cgcaccccg | ttgggcagag | gatccgccc | 1800 |
| gccttcgtgg | ccgaggcgagg | ttgggcgttg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgctc | ccccggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacggtgaac | ttcggcgctc | tctacggcat | gtccgcccac | 2040 |
| aggctctccc | aggagcttgc | catcccctac | gaggaggcgg | tggcctttat | agagcgctac | 2100 |
| ttccaaagct | ttcccaagggt | gcgggccttg | atagaaaaga | ccctggagga | ggggaggaag | 2160 |
| cggggctacg | tggaaaccct | cttcggaaga | aggcgctacg | tgcccgacct | caacgcccgg | 2220 |
| gtgaagagcg | tcagggaggc | cgcgagagcg | atggccttca | acatgcccgt | ccagggcacc | 2280 |
| gccgcgcgac | tcatgaagct | cgccatggtg | aagctcttcc | ccgcctccg | ggagatgggg | 2340 |
| gcccgcacgc | tctccaggt | ccacaacgag | ctcctcctgg | aggcccccca | agcgcgggcc | 2400 |
| gaggagggtg | cggctttggc | caaggaggcc | atggagaagg | cctatcccct | cgccgtgccc | 2460 |
| ctggagggtg | aggtggggat | gggggaggac | tggctttccg | ccaagggtca | ccaccaccac | 2520 |
| caccac | | | | | | 2526 |

<210> 79

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 79

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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| ccccgcgg | aaggggcctt | cgtgggcctt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtgc | accgggcagc | agaccccttg | 1020 |
| gcggggctaa | aggacctcaa | ggaggtccgg | ggcctcctcg | ccaaggacct | cgccgtcttg | 1080 |
| gcctcgaggg | aggggctaga | cctcgtgccc | ggggacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcgcggc | gctacggggg | ggagtggacg | 1200 |
| gaggacgccg | cccaccgggc | cctcctctcg | gagaggctcc | atcggaacct | ccttaagcgc | 1260 |
| ctcgaggggg | aggagaagct | cctttggctc | taccacgagg | tggaaaagcc | cctctccggg | 1320 |
| gtcctggccc | atatggaggc | caccggggta | cggcgggacg | tggcctacct | tcaggccctt | 1380 |
| tccctggagc | ttgcgaggga | gatccgccgc | ctcgaggagg | aggtcttccg | cttggcgggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttcccgcct | tggggaagac | gcaaaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
| gaggccctac | gggaggccca | ccccatcgtg | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccctc | ccaagcctcg | tccacccgag | gacggggccg | 1680 |

| | |
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| ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc | 1740 |
| aacctgcaga acatccccgt ccgcaccccc ttggggccaga ggatccgccg ggccttcgtg | 1800 |
| gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc | 1860 |
| gcccacctct ccggggacga aaacctgatc agggctcttc aggaggggaa ggacatccac | 1920 |
| acccagaccg caagctggat gttcggcgtc cccccggagg ccgtggaccc cctgatgcgc | 1980 |
| cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgcca taggctctcc | 2040 |
| caggagcttg ccatccccta cgaggaggcg gtggccttta tagagcgcta cttccaaagc | 2100 |
| ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac | 2160 |
| gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgcccg ggtgaagagc | 2220 |
| gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tcgccatggt gaagctcttc cccgcctcc gggagatggg ggcccgcag | 2340 |
| ctcctccagg tccacgacga gctcctcctg gaggcccccc aagcgcgggc cgaggaggtg | 2400 |
| gcggcttttg ccaaggaggc catggagaag gcctatcccc tcgccgtgcc cctggaggtg | 2460 |
| gaggtgggga tgggggagga ctggctttcc gccaaagggt | 2499 |

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<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 80

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| ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtcct tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |

| | | | | | | |
|------------|-------------|-------------|-------------|-------------|-------------|------|
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccgggggt | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcg | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agccccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtgc | accgggcagc | agacccttg | 1020 |
| gcggggctaa | aggacctcaa | ggaggtccgg | ggcctcctcg | ccaaggacct | cgccgtcttg | 1080 |
| gcctcgaggg | aggggctaga | cctcgtgccc | ggggacgacc | ccatgctcct | cgctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcgcggc | gctacggggg | ggagtggacg | 1200 |
| gaggacgccg | cccaccgggc | cctcctctcg | gagaggctcc | atcggaacct | ccttaagcgc | 1260 |
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| cacccttca | acctcaactc | ccgggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttcccgcct | tggggaagac | gcaaaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
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| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttggggccaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttcccgaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
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| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tccacgacga | gctggtcctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |

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| | | | | | | |
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| gccgaggcgg | gttgggcgtt | ggtggccctg | gactatagcc | agatagagct | ccgcgtcctc | 1860 |
| gccacctct | ccggggacga | aaacctgatc | agggctcttc | aggaggggaa | ggacatccac | 1920 |
| accagaccg | caagctggat | gttcggcgtc | ccccggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agacggtgaa | cttcggcgtc | ctctacggca | tgtccgcca | taggctctcc | 2040 |
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| ctcctccagg | tccacgacga | gctcctcctg | gaggcccccc | aagcgcgggc | cgaggagggtg | 2400 |
| gcggcttttg | ccaaggaggc | catggagaag | gcctatcccc | tcgccgtgcc | cctggagggtg | 2460 |
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<210> 82

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 82

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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|------|
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
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| aaagccctca | gggacctgaa | ggaggcgcg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgccc | ggcgacgacc | ccatgctcct | cgctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgagcg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccgc | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcca | tcggcaagac | gcaaaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcgtg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacctcttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgac | cggtcttccc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|------|
| cgggcgcca | agaccatcaa | cttcggggtc | ctctacggca | tgctcgccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tccacgacga | gctggctctc | gaggcccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaggag | | | 2499 |

<210> 83

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 83

| | | | | | | |
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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgctc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |

| | | | | | | |
|------------|------------|-------------|------------|------------|-------------|------|
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| ccccgcgcg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggccc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggccccgc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | ggcaccgggc | cgccctttcc | gagaggctct | tcgccaacct | gtgggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | caccggggta | cggcgggacg | tggcctacct | tcaggccctt | 1380 |
| tccttgagc | ttgcggagga | gatccgccgc | ctcgaggagg | aggtcttccg | cttggcgggc | 1440 |
| caccccttca | acctcaactc | cggggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttccgcct | tggggaagac | gcaaaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
| gaggccctac | gggaggccca | ccccatcgtg | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccctc | ccaagcctcg | tccacccgag | gacggggcgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttgggccaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgac | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgtac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggtatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tccacaacga | gctggtcctc | gaggcccaaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaggagc | accaccacca | ccaccac | 2517 |

<210> 84

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 84

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag | 120 |
| ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgcctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc tcccgggggt caagggcac | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg ccttctggaa agccccagg ccctggagga ggccccctgg | 900 |
| ccccgcgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtggg | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggtctctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctccgccc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg | 1200 |
| gaggaggcgg gggagcgggc cgccctttcc gagaggctcc atcggaacct gtgggggagg | 1260 |
| cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct | 1320 |
| gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt | 1380 |
| tccttgagc ttgcggagga gatccgccgc ctcgaggagg aggtcttccg cttggcgggc | 1440 |
| caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg | 1500 |
| cttccgcct tggggaagac gaaaagaca ggcaagcgt ccaccagcgc cgcggtgctg | 1560 |
| gaggccctac gggaggccca cccatcgtg gagaagatcc tccagaccg ggagctcacc | 1620 |

| | |
|---------------------------------------------------------------------|------|
| aagctcaaga acacctacgt ggacccccctc ccaagcctcg tccacccgag gacggggccgc | 1680 |
| ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc | 1740 |
| aacctgcaga acatccccgt ccgcaccccc ttggggccaga ggatccgccg ggcccttcac | 1800 |
| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg | 1860 |
| gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggag ggacatccac | 1920 |
| acggagaccg ccagctggat gttcggcgtc ccccgaggag ccgtggaccc cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcgggggtc ctctacggca tgtcggccca ccgcctctcc | 2040 |
| caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc | 2100 |
| ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tccacaacga gctggtcctc gaggcccaaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
| gaggtgggga taggggagga ctggctctcc gccaaaggagc accaccacca ccaccac | 2517 |

<210> 85

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 85

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag | 120 |
| ccggtgcagg cggctctacg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc cccacgccc gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |

| | | | | | | |
|------------|------------|-------------|-------------|------------|-------------|------|
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggt | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggccccgc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | caccggggta | cgccgggacg | tggcctacct | tcaggccctt | 1380 |
| tccctggagc | ttgcggagga | gatccgccgc | ctcaggaggg | aggtcttccg | cttggcgggc | 1440 |
| cacccttca | acctcaactc | ccgggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttcccgcct | tggggaagac | gcaaaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
| gaggccctac | gggaggccca | ccccatcgct | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccct | ccaagcctcg | tccacccgag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttgggcccaga | ggatccgccg | ggccttcatc | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttccc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcgccca | agaccatcaa | cttcgggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaaag | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |

| | |
|-------------------------------------------------------------------|------|
| ctccttcagg tccacaacga gctggtcctc gagggcccaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
| gaggtgggga taggggagga ctggctctcc gccaaaggagc accaccacca ccaccac | 2517 |

<210> 86

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 86

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag | 120 |
| ccggtgcagg cgggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc ccccacgccg gaggactttc cccggcaact cgcctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatactc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggg caagggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccatat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg cttcttgaa agccccaagg ccctggagga ggccccctgg | 900 |
| ccccgcgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctcccgcc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccaggggg gtggcccggc gctacggcgg ggagtggacg | 1200 |

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|------|
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gtgggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttcccgg | 1320 |
| gtcctggccc | atatggaggc | caccggggta | cggcgggacg | tggcctacct | tcaggccctt | 1380 |
| tccctggagc | ttgcggagga | gatccgccgc | ctcaggaggg | aggtcttccg | cttggcgggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttcccgctt | tggggaagac | gcaaaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
| gaggccctac | gggaggccca | ccccatcgct | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccct | ccaagcctcg | tccacccgag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttggggccaga | ggatccgccc | ggccttcctc | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgct | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggct | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
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<211> 2517

<212> DNA

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<223> Synthetic

<400> 87

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| | |
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| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
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| ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
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| tccctggagg | tggccgagga | gatcgcccgc | ctcgaggagg | aggtcttccg | cctggccggc | 1440 |
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| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgctc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
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| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
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| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
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| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccatat ggacgatctg | 720 |

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| acggagaccg | ccagctggat | gttcggcgctc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
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| | | | | | | |
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| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | cggggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
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| gaggccctcc | gcgaggccca | ccccatcgct | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacctcttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | cgcacccccg | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgct | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcgggggtc | ctctacggca | tgtcggccca | cgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttcccgaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
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| gtgcgggagg | cgcccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tccacaacga | gctggctctc | gaggcccca | aagagagggc | ggaggccgtg | 2400 |
| gccccgctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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| gaaccggtgc | aggcggtcta | cggcttcgcc | aagagcctcc | tcaaggccct | gaaggaggac | 180 |
| gggtacaagg | ccgtcttcgt | ggtctttgac | gccaaaggccc | cctccttcgg | ccacgagggc | 240 |
| tacgaggcct | acaaggcggg | gagggccccc | acccccgagg | acttcccccg | gcagctcgcc | 300 |
| ctcatcaagg | agctggtgga | cctcctgggg | tttaccgcgc | tcgaggctcc | cggctacgag | 360 |
| gcggacgacg | ttctcgccac | cctggccaag | aaggcggaaa | aggaggggta | cgaggtgcgc | 420 |
| atcctcaccg | ccgaccgcga | cctctaccaa | ctcgtctccg | accgcgtcgc | cgctcctccac | 480 |
| cccagggggc | acctcatcac | cccggagtgg | ctttgggaga | agtacggcct | caggccggag | 540 |
| cagtgggtgg | acttcgcgcg | cctcgtgggg | gacccctccg | acaacctccc | cggggtcaag | 600 |
| ggcatcgggg | agaagaccgc | cctcaagctc | ctcaaggagt | ggggaagcct | ggaaaacctc | 660 |
| ctcaagaacc | tggaccgggt | aaagccagaa | aacgtccggg | agaagatcaa | ggccccctg | 720 |
| gaagacctca | ggctctcctt | ggagctctcc | cgggtgcgca | ccgacctccc | cctggaggtg | 780 |
| gacctcgccc | aggggcggga | gcccgaaccg | gaggggctta | gggccttcct | ggagaggctg | 840 |
| gagttcggca | gcctcctcca | cgagttcggc | ctcctggagg | cccccgcccc | cctggaggag | 900 |
| gccccctggc | ccccgccgga | aggggccttc | gtgggcttcg | tcctctcccg | ccccgagccc | 960 |
| atgtgggcgg | agcttaaagc | cctggccgcc | tgcagggacg | gccgggtgca | ccgggcagca | 1020 |
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| | |
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| gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc | 1860 |
| cgcgtcctcg ccacctctc cggggacgaa aacctgatca gggctctcca ggaggggaag | 1920 |
| gacatcgcca ccagaccgc aagctggatg ttcggcgctc ccccgagggc cgtggacccc | 1980 |
| ctgatgcgcc gggcggccaa gacggtgaac ttcggcgctc tctacggcat gtccgcccat | 2040 |
| aggctctccc aggagcttgc catcccctac gaggaggcgg tggcctttat agagcgctac | 2100 |
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| cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgaact caacgcccgg | 2220 |
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| gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg | 2340 |
| gcccgcacgc tcctccaggt ccacaacgag ctctcctcgg agggccccca agcgcgggcc | 2400 |
| gaggagggtg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc | 2460 |
| ctggagggtg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac | 2520 |
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| gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcg ccacgaggcc | 240 |
| tacgaggcct acaaggcggg gagggccccg acccccgagg acttccccg gcagctcgcc | 300 |
| ctcatcaagg agctggtgga cctcctgggg ttaccgccg tcgaggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc | 420 |
| atcctcaccg ccgaccgga cctctaccaa ctctctccg accgcgtcgc cgtcctccac | 480 |
| cccaggggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |
| cagtgggtgg acttccgcgc cctcgtgggg gaccctccg acaacctccc cggggtcaag | 600 |
| ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc | 660 |
| ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg | 720 |
| gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggagggtg | 780 |
| gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg | 840 |
| gagttcggca gcctcctcca cgagttcggc ctcttgagg cccccgcccc cctggaggag | 900 |
| gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccc ccccgagccc | 960 |
| atgtgggcgg agcttaaagc cctggccgcc tgcagggcg gccgcgtgca ccgggcagca | 1020 |
| gacccttg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc | 1080 |
| gccgtcttg cctcgaggga ggggctagac ctctgcccc gggacgacct catgctctc | 1140 |
| gcctacctcc tggacccttc gaacaccacc cccgagggg tggcgcgcg ctacggggg | 1200 |
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| acgggcccgc tccacaccg cttcaaccag acggccacgg ccacggggag gcttagtagc | 1740 |
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| | |
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| cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggctctcca ggaggggaag | 1920 |
| gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccgagggc cgtggacccc | 1980 |
| ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgccc | 2040 |
| aggctctccc aggagcttgc catcccctac gaggaggcgg tggcctttat agagcgctac | 2100 |
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| gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc | 2460 |
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| gaaccggtgc aggcggtcta cggttcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcg ccacgaggcc | 240 |
| tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc | 300 |
| ctcatcaagg agctggtgga cctcctgggg tttaaccgcc tcgagggtccc cggctacgag | 360 |
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| cccaggggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |
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| | | | | | | |
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| ggcatcgggg | agaagaccgc | cctcaagctc | ctcaaggagt | ggggaagcct | ggaaaacctc | 660 |
| ctcaagaacc | tggaccgggt | aaagccagaa | aacgtccggg | agaagatcaa | ggcccacctg | 720 |
| gaagacctca | ggctctcctt | ggagctctcc | cgggtgcgca | ccgacctccc | cctggagggtg | 780 |
| gacctcgccc | aggggcggga | gcccgaccgg | gaggggctta | gggccttcct | ggagaggctg | 840 |
| gagttcggca | gcctcctcca | cgagttcggc | ctcctggagg | ccccgcccc | cctggaggag | 900 |
| gccccctggc | ccccgccgga | aggggccttc | gtgggcttcg | tcctctcccg | ccccgagccc | 960 |
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| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgctc | ccccggaggc | cgtggacccc | 1980 |
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| gaggaggtgg | cggctttggc | caaggaggcc | atggagaagg | cctatcccct | cgcctgcccc | 2460 |
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<400> 105

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|------------|------------|------------|------------|------------|------------|----|

| | | | | | | |
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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccgggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cggggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccacccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caagggtgcg | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaaag | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccggcc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccg | ctcgaggccg | aggtcttcgg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcga | tcggcaagac | gcaaaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacctcttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccggcg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggcg | ggacatccac | 1920 |

| | |
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| acggagaccg ccagctggat gttcggcgtc ccccgaggagg ccgtggaccc cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcgggggc ctctacggca tgcgggcca ccgcctctcc | 2040 |
| caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc | 2100 |
| ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggt gaagctcttc ccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tcgccaacga gctggctctc gaggcccaa aagagagggc ggaggccgtg | 2400 |
| gcccggtg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
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<210> 106

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 106

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| ccggtgcagg cggctctacgg cttcgccaa agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaa gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcacccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |

| | |
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| agcctcctcc acgagttcgg ctttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| ccccgcgagg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggccc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggctttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctccccgcc ggcgacgacc ccattgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccgagggg gtggccccggc gctacggcgg ggagtggacg | 1200 |
| gaggagggcg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg | 1260 |
| cttgaggggg aggagaggct cttttggctt taccgggagg tggagaggcc cttttccgct | 1320 |
| gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg | 1380 |
| tccctggagg tggccgagga gatcgccgcg ctcgaggccg aggtcttccg cctggccggc | 1440 |
| cacccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg | 1500 |
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| gaggccctcc gcgaggccca ccccatcggt gagaagatcc tgcagtaccg ggagctcacc | 1620 |
| aagctgaaga gcacctacat tgacccttg ccggacctca tccaccccag gacgggcccgc | 1680 |
| ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc | 1740 |
| aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccc ggccttcac | 1800 |
| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg | 1860 |
| gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatcgcc | 1920 |
| acggagaccg ccagctggat gttcggcgtc cccgggagg ccgtggacct cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcggggtc ctctacggca tgcgggcca ccgcctctcc | 2040 |
| caggagctag ccatocctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc | 2100 |
| ttccccagg tgccggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagacct tcttcggccg ccgccgctac gtgccagacc tagaggcccc ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggt gaagctcttc ccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tcgccaacga gctggctctc gaggccccaa aagagagggc ggaggccgtg | 2400 |
| gccccgctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
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<210> 107

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

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| ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggc caagggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| ccccgcgcgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg | 1080 |
| gcctgaggg aaggccttgg cctccgccc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggacctt cgaacaccac ccccgagggg gtggcccgcc gctacggcgg ggagtggacg | 1200 |
| gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg | 1260 |
| cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct | 1320 |
| gtcctggccc atatggaggc cacgggggtg cgctggacg tggcctatct cagggccttg | 1380 |
| tccctggagg tggccgagga gatcgccgc ctcgaggccg aggtcttccg cctggccggc | 1440 |
| caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg | 1500 |
| cttcccgcga tcggcaagac gcaaaagacc ggcaagcgct ccaccagcgc cgccgtcctg | 1560 |

| | |
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| aagctgaaga gcacctacat tgacccttg cgggacctca tccaccccag gacgggcccgc | 1680 |
| ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc | 1740 |
| aacctccaga acatccccgt cgccaccccg cttgggcaga ggatccgccg ggccttcac | 1800 |
| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct caggggtgctg | 1860 |
| gcccacctct cgggcgacga gaacctgatc cgggtcttcc aggagggggcg ggacatccac | 1920 |
| acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc | 2040 |
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| ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggt gaagctcttc ccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tcgccaacga gctggctctc gaggcccaaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
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<220>

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| ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctctc | 420 |

| | | | | | | |
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| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggt | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggagggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| ccccgccgg | aaggggcctt | cgtgggcctt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
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| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgccc | tccagggcac | cgccgccgac | 2280 |

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| ctcatgaagc | tggtatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctgggtcctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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| caccacctgg | cctaccgcac | cttcacagcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
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| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
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| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
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| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accggggccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
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| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgccctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccgc | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttccccgca | tcggcaagac | gcaaaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcgctg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcctc | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgata | cgggctcttc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgctc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcgggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaaag | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctcctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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<210> 110

<211> 2517

<212> DNA

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<220>

<223> Synthetic

<400> 110

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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccgggggggag | 120 |
| ccggtgcagg | cgttctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggcccggc | cgagacggag | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatactc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccagag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatac | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggagggcg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
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| gtcctggccc | atatggaggc | cacgggggtg | cgctggacg | tggcctatct | cagggccttg | 1380 |
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| cttcccgcga | tcggcaagac | gcaaaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
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| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgcgc | ggccttcatac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |

| | | | | | | |
|------------|-------------|------------|-------------|------------|-------------|------|
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggtcctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
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<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 111

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| caccacctgg | cctaccgcac | cttcacgcgc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggttcacg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatactc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccatat | ggacgatctg | 720 |

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|------|
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaagg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcca | tcggcaagac | gcaaaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacccttgg | ccggacctca | tccaccccag | gacggggcgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcgggca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagacct | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
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| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
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<211> 2517

<212> DNA

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<220>

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gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc      420
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| | |
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| aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc | 1680 |
| ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc | 1740 |
| aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcac | 1800 |
| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg | 1860 |
| gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggag ggacatccac | 1920 |
| acggagaccg ccagctggat gttcggcgtc ccccgaggag ccgtggacc cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcggggtc ctctacggca tgcggccca ccgcctctcc | 2040 |
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| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
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| gggtacaagg cgggccgggc cccacgccg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac | 360 |

| | | | | | | |
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| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
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| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcgggcca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |

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| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggtg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggaggtg | 2460 |
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<210> 114

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 114

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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgctc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgctg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |

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| gccctgaggg | aaggccttgg | cctcccggcc | ggcgacgacc | ccatgctcct | cgccctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggagggcg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
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| caccccttca | acctcaactc | cggggaccag | ctggaaaggg | tcctctttga | cgagctaagg | 1500 |
| attcccaaga | tcaagaagac | gcataagacc | ggtaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tcacccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
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| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtctctcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgct | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaaag | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
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| ctccttcagg | tcgccaacga | gctggctctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
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<211> 2517

<212> DNA

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gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

| | | | | | | |
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| gcccacctct | ccggcgacga | gaacctgatc | cggtctctcc | aggagggg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
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| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
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| ctccttcagg | tcgccaacga | gctggctctc | gaggcccca | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
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<210> 116

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<212> DNA

<213> Artificial Sequence

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<400> 116

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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatactc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttccgggggt | caagggcatac | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccatat | ggacgatctg | 720 |

| | | | | | | |
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| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgccc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggccccgg | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgagcg | tggcctatct | cagggccttg | 1380 |
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| cacccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctcagg | 1500 |
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| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
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| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggtcctc | gaggcccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
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<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 117

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| tccgacccca | acctgcagaa | catccccgtc | cgcaccccct | tgggccagag | gatccgcccg | 1800 |
| gccttcgtgg | ccgaggcggg | ttgggcgttg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgtcc | ccccggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacggtgaac | ttcggcgtcc | tctacggcat | gtccgcccac | 2040 |
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| gccgccgacc | tcatgaagct | cgccatggtg | aagctcttcc | cccgctccg | ggagatgggg | 2340 |
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| gaggaggtgg | cggctttggc | caaggaggcc | atggagaagg | cctatcccct | cgccgtgccc | 2460 |
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| ggccaccacc | tggcctaccg | caccttcttc | gccctgaagg | gcctcaccac | gagccggggc | 120 |
| gaaccggtgc | aggcggtcta | cggcttcgcc | aagagcctcc | tcaaggccct | gaaggaggac | 180 |
| gggtacaagg | ccgtcttcgt | ggtctttgac | gccaaaggccc | cctccttccg | ccacgaggcc | 240 |
| tacgaggcct | acaaggcggg | gaggggcccc | acccccgagg | acttcccccg | gcagctcgcc | 300 |

| | |
|-------------------------------------------------------------------|------|
| ctcatcaagg agctggtgga cctcctgggg tttaccgcc tgcaggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcggaag aggaggggta cgaggtgcgc | 420 |
| atcctcaccg ccgaccgga cctctaccaa ctcgctctcg accgcgtcgc cgtcctccac | 480 |
| cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |
| cagtgggtgg acttccgcgc cctcggtggg gacccctccg acaacctccc cggggtcaag | 600 |
| ggcatcgggg agtataccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc | 660 |
| ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg | 720 |
| gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg | 780 |
| gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg | 840 |
| gagttcggca gcctcctcca cgagttcggc ctcttgagg ccccgcccc cctggaggag | 900 |
| gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccc ccccgagccc | 960 |
| atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca | 1020 |
| gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc | 1080 |
| gccgtcttgg cctcgaggga ggggctagac ctcggtcccc gggacgaccc catgctcctc | 1140 |
| gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcgcgcg ctacgggggg | 1200 |
| gagtggacgg aggacgcgc ccaccgggccc ctctctcgg agaggctcca tcggaacctc | 1260 |
| cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc | 1320 |
| ctctcccggg tcctggccca tatggaggcc accggggtag ggcgggacgt ggcctacctt | 1380 |
| caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc | 1440 |
| ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggg gctctttgac | 1500 |
| gagcttaggc ttccgcctt ggggaagacg caaaagacag gcaagcgctc caccagcgcc | 1560 |
| gcggtgctgg aggccctacg ggaggccac cccatcgtgg agaagatcct ccagcaccgg | 1620 |
| gagctacca agctcaagaa cacctacgtg gacccctcc caagcctcgt ccacccgagg | 1680 |
| acgggcccgc tccacaccg cttcaaccag acggccacgg ccacggggag gcttagtagc | 1740 |
| tccgacccca acctgcagaa catccccgtc cgcacccctc tgggccagag gatccgccgg | 1800 |
| gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc | 1860 |
| cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggctctcca ggaggggaag | 1920 |
| gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccgaggc cgtggacccc | 1980 |
| ctgatgcgcc gggcgccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat | 2040 |
| aggctctccc aggagcttgc catcccctac gaggagggcg tggcctttat agagcgctac | 2100 |
| ttccaaagct tcccgaagg gcgggcctgg atagaaaaga ccctggagga ggggaggaag | 2160 |

| | | | | | | |
|------------|------------|------------|------------|------------|------------|------|
| cggggctacg | tggaaacctt | cttcggaaga | aggcgctacg | tgcccgcact | caacgcccgg | 2220 |
| gtgaagagcg | tcagggaggc | cgcgagcg | atggccttca | acatgcccgt | ccagggcacc | 2280 |
| gccgccgacc | tcatgaagct | cgccatggtg | aagctcttcc | cccgctccg | ggagatgggg | 2340 |
| gcccgcacgc | tcctccaggt | cgccaacgag | ctcctcctgg | aggcccccca | agcgcgggcc | 2400 |
| gaggaggtgg | cggtcttggc | caaggaggcc | atggagaagg | cctatcccct | cgccgtgccc | 2460 |
| ctggaggtgg | aggtggggat | gggggaggac | tggtcttccg | ccaagggtca | ccaccaccac | 2520 |
| caccac | | | | | | 2526 |

<210> 119

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 119

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| ggccaccacc | tggcctaccg | caccttcttc | gccctgaagg | gcctcaccac | gagccggggc | 120 |
| gaaccggtgc | aggcgtctta | cggtctcgcc | aagagcctcc | tcaaggccct | gaaggaggac | 180 |
| gggtacaagg | ccgtcttcgt | ggtctttgac | gccaaggccc | cctccttccg | ccacgaggcc | 240 |
| tacgaggcct | acaaggcggg | gagggccccg | acccccgagg | acttcccccg | gcagctcgcc | 300 |
| ctcatcaagg | agctggtgga | cctcctgggg | tttaccgcgc | tcgagggtcc | cggtacgag | 360 |
| gcggacgacg | ttctcgccac | cctggccaag | aaggcggaaa | aggaggggta | cgaggtgcgc | 420 |
| atcctcaccg | ccgaccgcga | cctctaccaa | ctcgtctccg | accgcgtcgc | cgctctccac | 480 |
| cccgagggcc | acctcatcac | cccggagtgg | ctttgggaga | agtacggcct | caggccggag | 540 |
| cagtgggtgg | acttccgcgc | cctcgtgggg | gaccctccg | acaacctccc | cggggtcaag | 600 |
| ggcatcaggg | agaagaccgc | cctcaagctc | ctcaaggagt | ggggaagcct | ggaaaacctc | 660 |
| ctcaagaacc | tggaccgggt | aaagccagaa | aacgtccggg | agaagatcaa | ggcccacctg | 720 |
| gaagacctca | ggctctcctt | ggagctctcc | cggtgctgca | ccgacctccc | cctggaggtg | 780 |
| gacctcgccc | aggggcggga | gcccagaccg | gaggggctta | gggccttcct | ggagaggctg | 840 |
| gagttcggca | gcctcctcca | cgagttcggc | ctcctggagg | ccccgcccc | cctggaggag | 900 |
| gccccctggc | ccccgcggga | aggggccttc | gtgggcttcg | tcctctcccc | ccccgagccc | 960 |

| | | | | | | |
|------------|------------|-------------|-------------|------------|------------|------|
| atgtgggcgg | agcttaaagc | cctggccgcc | tgcaggggcg | gccgcgtgca | ccgggcagca | 1020 |
| gaccccttgg | cggggctaaa | ggacctcaag | gaggtccggg | gcctcctcgc | caaggacctc | 1080 |
| gccgtcttgg | cctcgaggga | ggggctagac | ctcgtgcccg | gggacgaccc | catgctcctc | 1140 |
| gcctacctcc | tggacccttc | gaacaccacc | cccgaggggg | tggcgcggcg | ctacgggggg | 1200 |
| gagtggacgg | aggacgccgc | ccaccggggc | ctcctctcgg | agaggctcca | tcggaacctc | 1260 |
| cttaagcgcc | tcgaggggga | ggagaagctc | ctttggctct | accacgaggt | ggaaaagccc | 1320 |
| ctctccccgg | tcctggccca | tatggaggcc | accggggtag | ggcgggacgt | ggcctacctt | 1380 |
| caggcccttt | ccctggagct | tgcggaggag | atccgccgcc | tcgaggagga | ggtcttcgcg | 1440 |
| ttggcggggc | accccttcaa | cctcaactcc | cgggaccagc | tggaaagggt | gctctttgac | 1500 |
| gagcttaggc | ttcccgccct | ggggaagacg | caaaagacag | gcaagcgctc | caccagcgcc | 1560 |
| gcggtgctgg | aggccctacg | ggaggccccc | cccacgtggg | agaagatcct | ccagcaccgg | 1620 |
| gagctcacca | agctcaagaa | cacctacgtg | gacccccctc | caagcctcgt | ccacccgagg | 1680 |
| acggggccgc | tccacacccg | cttcaaccag | acggccacgg | ccacggggag | gcttagtagc | 1740 |
| tccgacccca | acctgcagaa | catccccgtc | cgcacccccct | tgggccagag | gatccgccgg | 1800 |
| gccttcgtgg | ccgaggcggg | ttgggcgttg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgctc | ccccggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacgggtgaac | ttcggcgctc | tctacggcat | gtccgcccac | 2040 |
| aggctctccc | aggagcttgc | catccccctac | gaggaggcgg | tggcctttat | agagcgctac | 2100 |
| ttccaaagct | tccccaaggt | gcgggcctgg | atagaaaaga | ccctggagga | ggggaggaag | 2160 |
| cggggctacg | tggaaaccct | cttcggaaga | aggcgctacg | tgcccgacct | caacgcccgg | 2220 |
| gtgaagagcg | tcagggaggc | cgcggagcgc | atggccttca | acatgcccgt | ccagggcacc | 2280 |
| gccgccgacc | tcataaagct | cgccatggtg | aagctcttcc | ccgcctccg | ggagatgggg | 2340 |
| gcccgcacgc | tcctccaggt | cgccaacgag | ctcctcctgg | aggcccccca | agcgcggggc | 2400 |
| gaggaggtgg | cggctttggc | caaggaggcc | atggagaagg | cctatcccct | cgccgtgccc | 2460 |
| ctggaggtgg | aggtggggat | gggggaggac | tggctttccg | ccaagggtca | ccaccaccac | 2520 |
| caccac | | | | | | 2526 |

<210> 120

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 120

| | | | | | | |
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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaa | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggttcacg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcctc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caagggtgcg | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagagggt | tgagtttggc | 840 |
| agcctcctcc | acgagtccgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcttacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagagggt | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctcagg | 1500 |
| cttcccaagt | tgaagaagac | gaagaagacc | ggtaagcgct | ccagcagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacccttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |

| | | | | | | |
|------------|-------------|------------|-------------|-------------|-------------|------|
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccc | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggag | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccaggggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctctc | gaggcccaaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaaggagc | accaccacca | ccaccac | 2517 |

<210> 121

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 121

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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggg | cgagacggag | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |

| | | | | | | |
|------------|------------|------------|------------|-------------|-------------|------|
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccgggggt | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggagggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggcct | agggcctttc | tggagagggt | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcctt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagagggt | cctttggcct | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgc | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| cacccttca | acctcaactc | ccgggaccag | ctggaaagg | tcctctttga | cgagctcagg | 1500 |
| cttcccaagt | tgaagaagac | gaagaagacc | ggtaagcgct | ccagcagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatgg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |

| | |
|--------------------------------------------------------------------|------|
| gccccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
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<210> 122

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 122

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag | 120 |
| ccggtgcagg cggtctacgg cttcgccaaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggg caatggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc | 960 |
| gatcttcttg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctcccgcgc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccagggg gtggccccgc gctacggcgg ggagtgagc | 1200 |
| gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg | 1260 |

| | | | | | | |
|-------------|------------|------------|-------------|------------|-------------|------|
| cttgagggggg | aggagaggct | ccttttggtt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccgc | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctcagg | 1500 |
| cttcccaagt | tgaagaagac | gaagaagacc | ggtaagcgct | ccagcagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacccttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggtcctc | gaggcccaa | aagagagggc | ggaggccgtg | 2400 |
| gccccgctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaaggagc | accaccacca | ccaccac | 2517 |

<210> 123

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 123

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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |

| | | | | | | |
|------------|------------|------------|------------|------------|-------------|------|
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggttcacg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cgcagaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccatat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctcagg | 1500 |
| cttcccaagt | tgaagaagac | gaagaagacc | ggtaagcgct | ccagcagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcgtg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacggggccg | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |

| | |
|---------------------------------------------------------------------|------|
| cgggcgggcca agaccatcaa cttegggggtc ctctacggca tgtcggccca ccgcctctcc | 2040 |
| caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc | 2100 |
| ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggg gaagctcttc cccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tcgccaacga gctggtcctc gagggcccaa aagagagggc ggaggccgtg | 2400 |
| gcccggtgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggagggtg | 2460 |
| gaggtgggga taggggagga ctggctctcc gccaaaggagc accaccacca ccaccac | 2517 |

<210> 124

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 124

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag | 120 |
| ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatactc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggg caagggcag | 600 |
| ggggagaaga cggggaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaacc ggagaggctt agggcctttc tggagaggct tgagtttgcc | 840 |

| | |
|--------------------------------------------------------------------|------|
| agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtggggc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcg gggtcttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctcccgcgc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccaggggg gtggcccggc gctacggcgg ggagtggacg | 1200 |
| gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg | 1260 |
| cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct | 1320 |
| gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg | 1380 |
| tccctggagg tggccgagga gatcgccgcg ctcgaggccg aggtcttccg cctggccggc | 1440 |
| cacccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg | 1500 |
| cttcccaagt tgaagaagac gaagaagacc ggtaagcgt ccagcagcgc cgccgtcctg | 1560 |
| gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc | 1620 |
| aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggcccgc | 1680 |
| ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc | 1740 |
| aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccc ggcttcatc | 1800 |
| gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg | 1860 |
| gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac | 1920 |
| acggagaccg ccagctggat gttcggcgtc cccgggagg ccgtggacc cctgatgcgc | 1980 |
| cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc | 2040 |
| caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc | 2100 |
| ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac | 2160 |
| gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc | 2220 |
| gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tggctatggt gaagctcttc ccaggctgg aggaaatggg ggccaggatg | 2340 |
| ctccttcagg tcgccaacga gctggctctc gaggcccaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
| gaggtgggga taggggagga ctggctctcc gccaaaggagc accaccacca ccaccac | 2517 |

<210> 125

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 125

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag | 120 |
| ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaaccgggc ctggccttgg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc | 600 |
| ggggagaata cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caagggtgcg accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg ctttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| cccccgccgg aaggggcctt cgtgggcctt gtgctttccc gcaaggagcc catgtgggccc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctcccgcgc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggaccctt cgaacaccac ccccagggg gtggcccggc gctacggcgg ggagtggacg | 1200 |
| gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg | 1260 |
| cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct | 1320 |
| gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg | 1380 |
| tccctggagg tggccgagga gatcgccgcg ctcgaggccg aggtcttccg cctggccggc | 1440 |
| caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg | 1500 |
| cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccagcagcgc cgccgtcctg | 1560 |
| gaggccctcc gcgaggccca ccccatcggt gagaagatcc tgcagtaccg ggagctcacc | 1620 |

| | | | | | | |
|------------|-------------|------------|------------|------------|-------------|------|
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggag | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctctc | gaggccccaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaggagc | accaccacca | ccaccac | 2517 |

<210> 126

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 126

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| caccacctgg | cctaccgcac | cttcacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggcccggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggttcacg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |

| | | | | | | |
|------------|------------|-------------|-------------|-------------|-------------|------|
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccgggggt | caagggcatc | 600 |
| ggggagaagc | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggagggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgccg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgccc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggccccgc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgagcg | tggcctatct | cagggccttg | 1380 |
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| gaggccctcc | gcgaggccca | ccccatcgtg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
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| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttccc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcgggca | agaccatcaa | cttcgggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cgcccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |

| | |
|-------------------------------------------------------------------|------|
| ctccttcagg tgcccaacga gctggtcctc gagggcccaa aagagagggc ggaggccgtg | 2400 |
| gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg | 2460 |
| gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac | 2517 |

<210> 127

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 127

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| caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag | 120 |
| ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg | 180 |
| gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg | 240 |
| gggtacaagg cgggccgggc cccacgcgcg gaggactttc cccggcaact cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac | 360 |
| gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc | 420 |
| accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag | 480 |
| gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg | 540 |
| gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggg caagggcatc | 600 |
| ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag | 660 |
| aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg | 720 |
| aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc | 780 |
| aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc | 840 |
| agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg | 900 |
| ccccgcgcgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc | 960 |
| gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat | 1020 |
| aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg | 1080 |
| gccctgaggg aaggccttgg cctcccgcgc ggcgacgacc ccatgctcct cgcctacctc | 1140 |
| ctggacctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg | 1200 |

| | | | | | | |
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| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gcttaagagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcttgacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccgc | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaagg | tcctctttga | cgagctcagg | 1500 |
| cttcccaagt | tgaagaagac | gaagaagacc | ggtaagcgct | ccagcagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcgtg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacccttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcacccc | cttgggcaga | ggatccgccg | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | caggggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cggtcttcc | aggagggg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | cgccctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatgg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tcgccaacga | gctggctctc | gaggcccaaa | aagagagggc | ggaggccgtg | 2400 |
| gcccggctgg | ccaaggagg | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaggagc | accaccacca | ccaccac | 2517 |

<210> 128

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 128

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|------------|------------|------------|------------|------------|------------|----|

| | | | | | | |
|------------|------------|-------------|------------|------------|-------------|------|
| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggctctacg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggcccggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
| gggtacctca | tcaccccgcc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggc | ggccgcgtgc | accgggcagc | agacccttg | 1020 |
| gcggggctaa | aggacctcaa | ggaggtccgg | ggcctcctcg | ccaaggacct | cgccgtcttg | 1080 |
| gcctcgaggg | aggggctaga | cctcgtgccc | ggggacgacc | ccatgctcct | cgctacctc | 1140 |
| ctggacctt | cgaacaccac | ccccgagggg | gtggcgcggc | gctacggggg | ggagtggacg | 1200 |
| gaggacgccg | cccaccgggc | cctcctctcg | gagaggctcc | atcggaacct | ccttaagcgc | 1260 |
| ctcgaggggg | aggagaagct | cctttggctc | taccacgagg | tggaaaagcc | cctctcccgg | 1320 |
| gtcctggccc | atatggaggc | caccggggta | cggcgggacg | tggcctacct | tcaggccctt | 1380 |
| tccctggagc | ttgcggagga | gatccgccgc | ctcgaggagg | aggtcttccg | cttggcgggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tgctctttga | cgagcttagg | 1500 |
| cttccgcct | tgaagaagac | gaagaagaca | ggcaagcgct | ccaccagcgc | cgcggtgctg | 1560 |
| gaggccctac | gggaggccca | ccccatcgtg | gagaagatcc | tccagcaccg | ggagctcacc | 1620 |
| aagctcaaga | acacctacgt | ggacccccctc | ccaagcctcg | tccacccgag | gacggggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggga | ggcttagtag | ctccgacccc | 1740 |
| aacctgcaga | acatccccgt | ccgcaccccc | ttggggcaga | ggatccgccg | ggccttcgtg | 1800 |
| gccgagggcg | gttgggcgtt | ggtggccctg | gactatagcc | agatagagct | ccgcgtcctc | 1860 |
| gcccacctct | ccggggacga | aaacctgata | agggctcttc | aggaggggaa | ggacatccac | 1920 |

| | |
|--------------------------------------------------------------------|------|
| accagaccg caagctggat gttcggcgtc cccccggagg ccgtggaccc cctgatgcgc | 1980 |
| cgggcggccca agacgggtgaa cttcggcgtc ctctacggca tgtccgcca taggctctcc | 2040 |
| caggagcttg ccatccccta cgaggaggcg gtggccttta tagagcgcta cttccaaagc | 2100 |
| ttccccaagg tgggggcctg gatagaaaag accctggagg aggggaggaa gcggggctac | 2160 |
| gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgccc ggtgaagagc | 2220 |
| gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac | 2280 |
| ctcatgaagc tcgccatggg gaagctcttc cccgcctcc gggagatggg ggcccgcagc | 2340 |
| ctcctccagg tcgccaacga gctcctcctg gaggcccccc aagcgcgggc cgaggaggtg | 2400 |
| gcggcttttg ccaaggaggc catggagaag gcctatcccc tcgccgtgcc cctggaggtg | 2460 |
| gaggtgggga tgggggagga ctggctttcc gccagggtc accaccacca ccaccac | 2517 |

<210> 129

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 129

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| gaaccggtgc aggcggtcta cggttcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcg ccacgaggcc | 240 |
| tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc | 300 |
| ctcatcaagg agctggtgga cctcctgggg tttaccgcc tcgaggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc | 420 |
| atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac | 480 |
| cccaggggcc acctcatcac ccgggagtgg ctttgggaga agtacggcct caggccggag | 540 |
| cagtgggttg acttcgcgc cctcgtgggg gaccctccg acaacctccc cggggtcaag | 600 |
| ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc | 660 |
| ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg | 720 |
| gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg | 780 |

| | |
|--------------------------------------------------------------------|------|
| gacctcgccc aggggcgga gcccgaaccg gaggggctta gggccttcct ggagaggctg | 840 |
| gagttcggca gcctcctcca cgagttcggc ctcttgagg ccccgcccc cctggaggag | 900 |
| gccccctggc ccccgccga aggggccttc gtgggcttcg tcctctcccg ccccgagccc | 960 |
| atgtgggagg agcttaaagc cctggccgccc tgcaggggag gccgcgtcca ccgggcccc | 1020 |
| gagccttata aagccctcag ggacctgaag gaggcgcggg ggcttctcgc caaagacctg | 1080 |
| agcgttctgg ccctgaggga aggccttggc ctcccgcccc gcgacgaccc catgctcctc | 1140 |
| gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcccgagg ctacggcggg | 1200 |
| gagtggacgg aggaggcggg ggagcgggccc gccctttccg agaggctctt cgccaacctg | 1260 |
| cttaagaggc ttgaggggga ggagaggctc ctttggcttt accgggagggt ggagaggccc | 1320 |
| ctttccgctg tcctggccca tatggaggcc acgggggtgc gcctggacgt ggcctatctc | 1380 |
| agggccttgt ccctggagggt ggccgaggag atcgcccgcc tcgaggccga ggtcttccgc | 1440 |
| ctggccggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt cctctttgac | 1500 |
| gagctagggc ttcccgccat caagaagagc caaaagaccg gcaagcgctc caccagcgcc | 1560 |
| gccgtcctgg agggcctccg cgaggccccc cccatcgtag agaagatcct gcagtaccgg | 1620 |
| gagctcacca agctgaagag cacctacatt gacctcttgc cggacctcat ccaccccagg | 1680 |
| acgggcccgc tcacaccccg cttcaaccag acggccacgg ccacgggcag gctaagtagc | 1740 |
| tccgatccca acctccagaa catccccgtc cgcaccccg cttgggcagag gatccgcccg | 1800 |
| gccttcatcg ccgaggagggt gtggctattg gtggccctgg actatagcca gatagagctc | 1860 |
| aggggtgctg cccacctctc cggcgacgag aacctgatcc gggcttcca ggagggcg | 1920 |
| gacatccaca cggagaccgc cagctggatg ttcggcgctc cccgggaggc cgtggacccc | 1980 |
| ctgatgcgcc gggcgcccaa gaccatcaac ttcggggctc tctacggcat gtcggccccc | 2040 |
| cgctctccc aggagctagc catcccttac gaggaggccc aggccttcat tgagcgctac | 2100 |
| tttcagagct tccccagggt gcgggcctgg attgagaaga ccctggagga gggcaggagg | 2160 |
| cgggggtacg tggagaccct cttcgccgc cgcgctacg tgccagacct agaggcccgg | 2220 |
| gtgaagagcg tgcgggaggc ggccgagcgc atggccttca acatgcccgt ccagggcacc | 2280 |
| gccgccgacc tcatgaagct ggctatggtg aagctcttcc ccaggctgga ggaaatgggg | 2340 |
| gccaggatgc tccttcaggt cgccaacgag ctggtcctcg agggcccaaa agagagggcg | 2400 |
| gaggccgtgg cccggctggc caaggaggtc atggaggggg tgtatccctt ggccgtgccc | 2460 |
| ctggagggtg aggtggggat aggggaggac tggctctccg ccaaggagca ccaccaccac | 2520 |
| caccac | 2526 |

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<211> 2508

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 130

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| | | | | | | |
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| ctggaggccc | tccggggggc | ccaccccatc | gtggagctca | tcctccagta | ccgggagctt | 1620 |
| tccaagctca | aaagcaccta | cctggacccc | ctgccccggc | tcgtccaccc | gcggacgggc | 1680 |
| cggtccaca | cccgttcaa | ccagacggcc | acggccacgg | gaaggctttc | cagctccgac | 1740 |
| cccaacctgc | agaacatccc | cgtgcgcacc | cccttggggc | agcgcacccg | caaggccttc | 1800 |
| gtggccgagg | aggggtggct | ccttttggcg | gcggactact | cccagattga | gctccgggtc | 1860 |
| ctggcccacc | tctcggggga | cgagaacctg | aagcgggtct | tccgggaggg | gaaggacatc | 1920 |
| cataccgaga | ccgccgcctg | gatgttcggc | ttagaccccc | ctctggtgga | tccaaagatg | 1980 |
| cgccggggcgg | ccaagacggt | caacttcggc | gtcctctacg | ggatgtccgc | ccacaggctc | 2040 |
| tcccaggagc | tcggcataga | ctacaaggag | gcggaggcct | ttattgagcg | ctacttccag | 2100 |
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| ctcctcctcc | aagtgcacaa | cgagctggtc | ctggagggtgc | ccgaggaccg | ggccgaggag | 2400 |
| gccaaggccc | tggtcaagga | ggtcatggag | aacgcctacc | ccctggacgt | gccccctcag | 2460 |
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<210> 131

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 131

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| ctggcctacc | gtaccttttt | tgccctgaag | ggcctcacca | ccagccgcgg | ggagccggtc | 120 |
| caggcgggtg | acgggtttgc | caagagcctt | ttgaaggcgc | taagggaaga | cggggatgtg | 180 |
| gtgatcgtgg | tgtttgacgc | caaggccccc | tccttcgcgc | accagacctc | cgaggcctac | 240 |
| aaggcggggc | gggctcccac | ccccgaggac | tttccccggc | agcttgccct | tatcaaggag | 300 |
| atggtggacc | ttttgggcct | ggagcgcctc | gagggtgccg | gctttgaagc | ggatgacgtc | 360 |

| | | | | | | |
|-------------|------------|------------|------------|------------|-------------|------|
| ctggctaccc | tggccaagaa | ggcgaaaaag | gaaggctacg | aagtgcgcat | cctcaccgcg | 420 |
| gaccgggacc | tttaccagct | tctttcggag | cgaatctcca | tccttcaccc | ggaggggttac | 480 |
| ctgatcaccc | cggagtggct | ttgggagaag | tatgggctta | agccttccca | gtgggtggac | 540 |
| taccgggcct | tggccgggga | cccttcgcac | aacatccccg | gcgtgaaggg | catcggggag | 600 |
| aagacggcgg | ccaagctgat | ccgggagtg | ggaagcctgg | aaaaccttct | taagcacctg | 660 |
| gaacaggtga | aacctgcctc | cgtgcgggag | aagatcctta | gccacatgga | ggacctcaag | 720 |
| ctatccctgg | agctatcccc | ggtgcacacg | gacttgctcc | ttcaggtgga | cttcgcccgg | 780 |
| cgccgggagc | cggaccggga | ggggcttaag | gccttttttg | agaggctgga | gttcggaagc | 840 |
| ctcctccacg | agttcggcct | gttggaagc | ccggtggcgg | cggaggaagc | tccttgcccg | 900 |
| ccccccgagg | gagccttcgt | ggggtacgtt | ctttcccgcc | ccgagcccat | gtgggcggag | 960 |
| cttaacgcct | tggccgccgc | ctgggagggg | agggtttacc | gggcggagga | tcctttggag | 1020 |
| gccttgccgg | ggcttgggga | ggtgaggggg | cttttgacca | aggacctggc | ggtgctggcc | 1080 |
| ctgaggggaag | ggattgccct | ggcaccgggc | gacgacccca | tgctcctcgc | ctacctcctg | 1140 |
| gatccttcca | acaccgcccc | cgaaggggta | gcccggcgct | acggggggga | gtggaccgag | 1200 |
| gaggcggggg | aaagggcgct | gctttccgaa | aggctttacg | ccgccctcct | gaagcggcct | 1260 |
| aagggggagg | agaggcttct | ttggctttac | gaggaggtgg | aaaagccctt | ttcgcggttc | 1320 |
| ctggcccaca | tggaggccac | gggggtacgg | ttggatgtgg | cctacttaaa | ggccctttcc | 1380 |
| ctggaggtgg | aggcggagat | aaggcgcttc | gaggaggagg | tccaccgcct | ggccgggcat | 1440 |
| cctttcaacc | tgaactcccc | ggaccagctg | gaaagggcca | tctttgacga | gcttgggctt | 1500 |
| cccgccatcg | gcaagacgca | gaagacgggc | aagcgctcca | ccagcgccgc | cgttttggag | 1560 |
| gccttgccgg | aggctcatcc | catcgtggac | cgcctccttc | agtaccggga | gctttccaag | 1620 |
| ctcaagggaa | cctacatcga | tcccttgcc | gccctggctc | acccaagac | gaaccgcctc | 1680 |
| cacaccgctt | tcaaccagac | ggccaccgcc | acggggaggc | ttagcagctc | ggatccta | 1740 |
| ctgcaaaata | tccccgtgcg | cacccctttg | ggccagcgga | tccgcccggc | cttcgtggcc | 1800 |
| gaggaggggt | ggaggctggt | ggttttggac | tacagccaga | ttgagctcag | ggtcctggcg | 1860 |
| cacctttccg | gggacgagaa | cctaatacgg | gtcttcagg | agggccagga | catccacacc | 1920 |
| cagacggcca | gctggatggt | cggcgtgccc | ccagaggccg | tggattccct | gatgcgccgg | 1980 |
| gcggccaaga | ccatcaactt | cggcgtcctc | tacggcatgt | ccgccaccg | gctttcggga | 2040 |
| gagctggcca | tcccctacga | ggaggcggtg | gccttcacgc | agcggtat | ccagagctac | 2100 |
| cccaaggtgc | gggcctggat | tgagaaaacc | ctggcggaag | gacgggaacg | gggctatgtg | 2160 |
| gaaacccctc | ttggccgccc | gcgctacgtg | cccgaacttg | cttcccgggt | gaagagcatc | 2220 |

| | | | | | | | |
|-------------|------------|-------------|------------|-------------|------------|-----------|------|
| cgaggaggcag | cggagcgc | at | ggccttcaac | atgccgggtcc | aggggaccgc | cgcggtttg | 2280 |
| atgaaactgg | ccatggtgaa | gctctttccc | aggcttcagg | agctgggggc | caggatgctt | | 2340 |
| ttgcaggtgc | acaacgaact | ggtcctcgag | gctcccaagg | agcaagcgga | ggaagtgcgc | | 2400 |
| caggaggcca | agcggaccat | ggaggagggtg | tggcccctga | aggtgccctt | ggagggtgaa | | 2460 |
| gtgggcatcg | gggaggactg | gctttccgcc | aaggcctag | | | | 2499 |

<210> 132

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 132

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| ggccaccacc | tggcctaccg | caccttctat | gccctgagcc | tcaccacctc | ccggggggag | 120 |
| ccggtgcaga | tgggtctacgg | cttcgcccgg | agcctcctca | aggccttgaa | ggaggacgga | 180 |
| caggcggtgg | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacgag | 240 |
| gcctacaagg | cgggcccggc | ccccaccccg | gaggacttcc | cccgccagct | cgccttggtc | 300 |
| aagcggctgg | tggaccttct | gggcctggtc | cgcctcgagg | ccccggggta | cgaggcggac | 360 |
| gacgtcctgg | gcaccctggc | caagaaggcc | gaaaggagg | ggatggaggt | gcgcatactc | 420 |
| acgggagacc | gggacttctt | ccagctcctc | tccgagaagg | tctcggtcct | cctgccggac | 480 |
| gggaccctgg | tcaccccaaa | ggacgtccag | gagaagtacg | gggtgcccc | ggagcgctgg | 540 |
| gtggacttcc | gcgccctcac | gggggaccgc | tcggacaaca | tccccggggt | ggcggggata | 600 |
| ggggagaaga | ccgcccttcg | actcctcgca | gagtggggga | gcgtggaaaa | cctcctgaag | 660 |
| aacctggacc | gggtaaagcc | ggactcgctc | cggcgcaaga | tagaggcgca | cctcgaggac | 720 |
| ctccacctct | ccttagacct | ggcccgcatc | cgcaccgacc | tccccctgga | ggtggacttt | 780 |
| aaggccctgc | gccgcaggac | ccccgacctg | gagggcctga | gggccttttt | ggaggagctg | 840 |
| gagttcgga | gcctcctcca | cgagttcggc | ctcctgggag | gggagaagcc | ccgggaggag | 900 |
| gccccctggc | ccccgcccga | aggggccttc | gtgggcttcc | tcctttcccg | caaggagccc | 960 |
| atgtgggctg | agcttctggc | cctggcgggc | gcctcgggcg | gccgcgtgca | ccgggcagca | 1020 |
| gacccttgg | cggggctaaa | ggacctcaag | gaggtccggg | gcctcctcgc | caaggacctc | 1080 |

| | |
|--------------------------------------------------------------------|------|
| gccgtcttgg cctcgaggga ggggctagac ctctgccccg gggacgaccc catgctcctc | 1140 |
| gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcgcgggc ctacgggggg | 1200 |
| gagtggacgg aggacgccgc ccaccgggccc ctctctctcg agaggctcca tcggaacctc | 1260 |
| cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc | 1320 |
| ctctcccggt tcctggccca tatggaggcc accgggggtac ggcgggacgt ggcctacctt | 1380 |
| caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc | 1440 |
| ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt gctctttgac | 1500 |
| gagcttaggc ttcccgctt gaagaagacg aagaagacag gcaagcgctc caccagcgcc | 1560 |
| gcggtgctgg aggcctacg ggaggccccc cccatcgtag agaagatcct ccagcaccgg | 1620 |
| gagctcacca agctcaagaa cacctacgtg gacccccctc caagcctcgt ccacccgagg | 1680 |
| acggggccgcc tccacaccgc cttcaaccag acggccacgg ccacggggag gcttagtagc | 1740 |
| tccgacccca acctgcagaa catccccgtc cgcacccccct tgggccagag gatccgccgg | 1800 |
| gccttcgtgg ccgaggcggt ttgggcgttg gtggccctgg actatagcca gatagagctc | 1860 |
| cgcgtcctcg ccacctctc cggggacgaa aacctgatca gggctctcca ggaggggaag | 1920 |
| gacatccaca ccagaccgc aagctggatg ttcggcgtcc ccccgagggc cgtggacccc | 1980 |
| ctgatgcgcc gggcgcccaa gacggtgaac ttcggcgtcc tctacggcat gtccgccccat | 2040 |
| aggctctccc aggagcttgc catcccctac gaggaggcgg tggcctttat agagcgctac | 2100 |
| ttccaaagct tccccaaagt gcgggcctgg atagaaaaga ccctggagga ggggaggaag | 2160 |
| cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccacact caacgcccgg | 2220 |
| gtgaagagcg tcaggagggc cgcggagcgc atggccttca acatgcccgt ccagggcacc | 2280 |
| gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg | 2340 |
| gcccgcacgc tcctccaggt cgccaacgag ctctccttgg aggccccca agcgcggggc | 2400 |
| gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc | 2460 |
| ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac | 2520 |
| caccac | 2526 |

<210> 133

<211> 2514

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 133

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| ctggcctacc | gtaccttttt | tgcctgaag | ggcctcacca | ccagccgcgg | ggagccggtc | 120 |
| caggcggtgt | acgggtttgc | caagagcctt | ttgaaggcgc | taagggaaga | cggggatgtg | 180 |
| gtgatcgtgg | tgtttgacgc | caaggccccc | tccttcgcgc | accagacctt | cgaggcctac | 240 |
| aaggcggggc | gggctccac | ccccgaggac | tttccccggc | agcttgccct | tatcaaggag | 300 |
| atggtggacc | ttttgggcct | ggagcgctc | gaggtgccgg | gctttgaagc | ggatgacgtc | 360 |
| ctggctaccc | tggccaagaa | ggcggaaaag | gaaggctacg | aagtgcgcac | cctcaccgcg | 420 |
| gaccgggacc | tttaccagct | tctttcggag | cgaatctcca | tccttcaccc | ggaggggttac | 480 |
| ctgatcacc | cggagtggct | ttgggagaag | tatgggctta | agccttccca | gtgggtggac | 540 |
| taccgggcct | tggccgggga | cccttcgcac | aacatccccg | gcgtgaaggg | catcggggag | 600 |
| aagacggcgg | ccaagctgat | ccgggagtgg | ggaagcctgg | aaaaccttct | taagcacctg | 660 |
| gaacaggtga | aacctgcctc | cgtgcgggag | aagatcctta | gccacatgga | ggacctcaag | 720 |
| ctatccctgg | agctatcccc | ggtgcacacg | gacttgctcc | ttcaggtgga | cttcgcccgg | 780 |
| cgccggggagc | cggaccggga | ggggcttaag | gccttttttg | agaggctgga | gttcggaagc | 840 |
| ctcctccacg | agttcggcct | gttggaagc | ccgggtggcg | cggaggaagc | tccttgcccg | 900 |
| ccccccgagg | gagccttcgt | ggggtacgtt | ctttcccgc | ccgagcccat | gtgggcggag | 960 |
| cttaacgcct | tggccgcgc | ctggggcggc | cgctgcacc | gggcagcaga | ccccttggcg | 1020 |
| gggctaagg | acctcaagga | ggtccggggc | ctcctcgcca | aggacctcgc | cgtcttggcc | 1080 |
| tcgagggagg | ggctagacct | cgtgcccggg | gacgacccca | tgctcctcgc | ctacctctg | 1140 |
| gacccttcga | acaccacccc | caggggggtg | gcgcggcgct | acggggggga | gtggacggag | 1200 |
| gacgcgcgcc | accgggccc | cctctcggag | aggctccatc | ggaacctcct | taagcgctc | 1260 |
| gagggggagg | agaagctcct | ttggctctac | cacgaggtgg | aaaagcccct | ctcccgggtc | 1320 |
| ctggcccata | tggaggccac | cggggtacgg | cgggacgtgg | cctaccttca | ggccctttcc | 1380 |
| ctggagcttg | cggaggagat | ccgccgcctc | gaggaggagg | tcttcgcctt | ggcgggccac | 1440 |
| cccttcaacc | tcaactcccc | ggaccagctg | gaaagggtgc | tctttgacga | gcttaggctt | 1500 |
| ccgccttga | agaagacgaa | gaagacaggc | aagcgctcca | ccagcgccgc | ggtgctggag | 1560 |
| gccctacggg | aggccacccc | catcgtggag | aagatcctcc | agcaccggga | gctcaccaag | 1620 |
| ctcaagaaca | cctacgtgga | ccccctccca | agcctcgtcc | acccgaggac | gggcgcctc | 1680 |
| cacacccgct | tcaaccagac | ggccacggcc | acggggaggc | ttagtagctc | cgaccccaac | 1740 |
| ctgcagaaca | tcccgcctcg | caccccttg | ggccagagga | tccgcggggc | cttcgtggcc | 1800 |

| | | | | | | |
|-------------|------------|------------|-------------|------------|-------------|------|
| gaggcggggtt | gggcgttggt | ggccctggac | tatagccaga | tagagctccg | cgtcctcgcc | 1860 |
| cacctctccg | gggacgaaaa | cctgatcagg | gtcttccagg | aggggaagga | catccacacc | 1920 |
| cagaccgcaa | gctggatggt | cggcgtcccc | ccggaggccg | tggaccccct | gatgcgccgg | 1980 |
| gcggccaaga | cggtgaactt | cggcgtcctc | tacggcatgt | ccgcccatag | gctctcccag | 2040 |
| gagcttgcca | ttccctacga | ggaggcggtg | gcctttatag | agcgctactt | ccaaagcttc | 2100 |
| cccaagggtgc | gggcctggat | agaaaagacc | ctggaggagg | ggaggaagcg | gggctacgtg | 2160 |
| gaaaccctct | tcggaagaag | gcgctacgtg | cccgaacctca | acgcccgggt | gaagagcgtc | 2220 |
| agggaggccg | cggagcgcat | ggccttcaac | atgcccgtcc | agggcaccgc | cgccgacctc | 2280 |
| atgaagctcg | ccatggtgaa | gctcttcccc | cgctccggg | agatgggggc | ccgcatgctc | 2340 |
| ctccaggctcg | ccaacgagct | cctcctggag | gccccccaag | cgcgggccga | ggagggtggcg | 2400 |
| gctttggcca | aggaggccat | ggagaaggcc | tatcccctcg | ccgtgcccct | ggagggtggag | 2460 |
| gtggggatgg | gggaggactg | gctttccgcc | aagggtcacc | accaccacca | ccac | 2514 |

<210> 134

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 134

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| atgaattcca | ccccactttt | tgacctggag | gaacccccca | agcgggtgct | tctggtggac | 60 |
| ggccaccacc | tggcctaccg | caccttctat | gccctgagcc | tcaccacctc | ccggggggag | 120 |
| ccggtgcaga | tgggtctacg | cttcgcccgg | agcctcctca | aggccttgaa | ggaggacgga | 180 |
| caggcggtgg | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacgag | 240 |
| gcctacaagg | cgggcccggc | ccccaccccg | gaggacttcc | cccgccagct | cgccttggtc | 300 |
| aagcggctgg | tggaccttct | gggcctggtc | cgcctcgagg | ccccggggta | cgaggcggac | 360 |
| gacgtcctgg | gcaccctggc | caagaaggcc | gaaagggagg | ggatggaggt | gcgcatacctc | 420 |
| acgggagacc | gggacttctt | ccagctcctc | tccgagaagg | tctcggtcct | cctgccggac | 480 |
| gggaccctgg | tcaccccaaa | ggacgtccag | gagaagtacg | gggtgcccc | ggagcgctgg | 540 |
| gtggacttcc | gcgccctcac | gggggaccgc | tcggacaaca | tccccggggt | ggcggggata | 600 |
| ggggagaaga | ccgcccttcg | actcctcgca | gagtggggga | gcgtggaaaa | cctcctgaag | 660 |

| | | | | | | |
|------------|-------------|-------------|------------|------------|------------|------|
| aacctggacc | gggtaaagcc | ggactcgcctc | cggcgcaaga | tagaggcgca | cctcgaggac | 720 |
| ctccacctct | ccttagacct | ggcccgcatc | cgcaccgacc | tccccctgga | ggtggacttt | 780 |
| aaggccctgc | gccgcaggac | ccccgacctg | gagggcctga | gggccttttt | ggaggagctg | 840 |
| gagttcggaa | gcctcctcca | cgagttcggc | ctcctgggag | gggagaagcc | ccgggaggag | 900 |
| gccccctggc | ccccgcccga | aggggccttc | gtgggcttcc | tcctttcccg | caaggagccc | 960 |
| atgtgggcgg | agcttctggc | cctggcgggc | gcctcggggc | gccgcgtcca | ccgggcccc | 1020 |
| gagccttata | aagccctcag | ggacctgaag | gaggcgcggg | ggcttctcgc | caaagacctg | 1080 |
| agcgttctgg | ccctgagggg | aggccttggc | ctcccgcggc | gcgacgacc | catgctctc | 1140 |
| gcctacctcc | tggacccttc | gaacaccacc | cccagggggg | tggcccggcg | ctacggcggg | 1200 |
| gagtggacgg | aggaggcggg | ggagcgggcc | gccctttccg | agaggctctt | cgccaacctg | 1260 |
| cttaagaggc | ttgaggggga | ggagaggctc | ctttggcttt | accgggaggt | ggagaggccc | 1320 |
| ctttccgctg | tccctggccca | tatggaggcc | acgggggtgc | gcctggacgt | ggcctatctc | 1380 |
| agggccttgt | ccctggaggt | ggccgaggag | atcgcccgcc | tcgaggccga | ggtcttccgc | 1440 |
| ctggccggcc | acccttcaa | cctcaactcc | cgggaccagc | tggaaaggg | cctctttgac | 1500 |
| gagctagggc | ttcccgccat | caagaagacg | caaaagaccg | gcaagcgctc | caccagcgcc | 1560 |
| gccgtcctgg | aggccctccg | cgaggcccac | cccatcgtgg | agaagatcct | gcagtaccgg | 1620 |
| gagctcacca | agctgaagag | cacctacatt | gaccttctgc | cggacctcat | ccacccagg | 1680 |
| acgggcccgc | tccacaccgc | cttcaaccag | acggccacgg | ccacgggcag | gctaagtagc | 1740 |
| tccgatccca | acctccagaa | catccccgtc | cgcacccgc | ttgggcagag | gatccgccgg | 1800 |
| gccttcatcg | ccgaggaggg | gtggctattg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| agggtgctgg | cccacctctc | cggcgacgag | aacctgatcc | gggtcttcca | ggaggggcgg | 1920 |
| gacatccaca | cggagaccgc | cagctggatg | ttcggcgtcc | cccgggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacctcaac | ttcggggtcc | tctacggcat | gtcggccccc | 2040 |
| cgcctctccc | aggagctagc | catcccttac | gaggaggccc | aggccttcat | tgagcgctac | 2100 |
| tttcagagct | tccccaggt | gcgggcctgg | attgagaaga | ccctggagga | gggcaggagg | 2160 |
| cgggggtacg | tggagaccct | cttcggccgc | cgccgctacg | tgccagacct | agaggcccgg | 2220 |
| gtgaagagcg | tgcgggaggc | ggccgagcgc | atggccttca | acatgcccgt | ccagggcacc | 2280 |
| gccgccgacc | tcatgaagct | ggctatggtg | aagctcttcc | ccaggctgga | ggaaatgggg | 2340 |
| gccaggatgc | tccttcaggt | cgccaacgag | ctggtcctcg | aggcccaaaa | agagagggcg | 2400 |
| gaggccgtgg | cccggctggc | caaggaggtc | atggaggggg | tgtatcccct | ggccgtgccc | 2460 |
| ctggaggtgg | aggtggggat | aggggaggac | tggctctccg | ccaaggagca | ccaccaccac | 2520 |

caccac

2526

<210> 135

<211> 2514

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 135

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| ctggcctacc gtaccttttt tgccctgaag ggcctcacca ccagccgcgg ggagccggtc | 120 |
| caggcggtgt acgggtttgc caagagcctt ttgaaggcgc taagggaaga cggggatgtg | 180 |
| gtgatcgtgg tgtttgacgc caaggccccc tccttccgcc accagacctt cgaggcctac | 240 |
| aaggcggggc gggctccac ccccgaggac tttccccggc agcttgccct tatcaaggag | 300 |
| atggtggacc ttttgggcct ggagcgcctc gaggtgccgg gctttgaagc ggatgacgtc | 360 |
| ctggctaccc tggccaagaa ggcggaaaag gaaggctacg aagtgcgcat cctcaccgcg | 420 |
| gaccgggacc tttaccagct tctttcggag cgaatctcca tccttcaccc ggagggttac | 480 |
| ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac | 540 |
| taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag | 600 |
| aagacggcgg ccaagctgat cggggagtgg ggaagcctgg aaaaccttct taagcacctg | 660 |
| gaacagggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag | 720 |
| ctatccctgg agctatcccc ggtgcacacg gacttgctcc ttcagggtgga cttcgcccgg | 780 |
| cgccgggagc cggaccggga ggggcttaag gccttttttg agaggctgga gttcggaagc | 840 |
| ctcctccacg agttcggcct gttggaaagc ccggtggcgg cggaggaagc tccttgcccg | 900 |
| ccccccgagg gagccttcgt ggggtacgtt ctttcccgcc ccgagcccat gtgggcggag | 960 |
| cttaacgcct tggccgccgc ctggggcggc cgcgtccacc gggccccga gccttataaa | 1020 |
| gccctcaggg acctgaagga ggcgcggggg cttctcgcca aagacctgag cgttctggcc | 1080 |
| ctgagggaag gccttggcct cccgcccggc gacgaccca tgctcctcgc ctacctctg | 1140 |
| gaccttcga acaccacccc cgagggggtg gcccggcgt acggcgggga gtggacggag | 1200 |
| gaggcggggg agcgggccgc cctttccgag aggtctcttcg ccaacctgct taagaggctt | 1260 |
| gagggggagg agaggctcct ttggctttac cgggaggtgg agaggccct ttcgctgtc | 1320 |

| | |
|--------------------------------------------------------------------|------|
| ctggcccata tggaggccac gggggtgcgc ctggacgtgg cctatctcag ggccttgtcc | 1380 |
| ctggaggtgg ccgaggagat cgcccgccctc gaggccgagg tcttccgcct ggccggccac | 1440 |
| cccttcaacc tcaactcccg ggaccagctg gaaaggggcc tctttgacga gctagggctt | 1500 |
| cccgccatca agaagacgca aaagaccggc aagcgctcca ccagcgccgc cgtcctggag | 1560 |
| gccctccgcg agggccaccc catcgtggag aagatcctgc agtaccggga gctcaccaag | 1620 |
| ctgaagagca cctacattga ccccttgccg gacctcatcc accccaggac gggccgcctc | 1680 |
| cacacccgct tcaaccagac ggccacggcc acgggcaggc taagtagctc cgatcccaac | 1740 |
| ctccagaaca tccccgtccg cccccgctt gggcagagga tccgccgggc cttcatcgcc | 1800 |
| gaggaggggt ggctattggt ggccctggac tatagccaga tagagctcag ggtgctggcc | 1860 |
| cacctctccg gcgacgagaa cctgatccgg gtcttccagg aggggcggga catccacacg | 1920 |
| gagaccgcca gctggatgtt cggcgtcccc cgggaggccg tggaccccct gatgcgccgg | 1980 |
| gcggccaaga ccatcaactt cggggtcctc tacggcatgt cggcccaccg cctctcccag | 2040 |
| gagctagcca tcccttacga ggaggcccag gccttcattg agcgctactt tcagagcttc | 2100 |
| cccaaggtgc gggcctggat tgagaagacc ctggaggagg gcaggaggcg ggggtacgtg | 2160 |
| gagaccctct tcggccgccg ccgctacgtg ccagacctag agggccgggt gaagagcgtg | 2220 |
| cgggaggcgg ccgagcgcat ggccttcaac atgcccgtcc agggcaccgc cgccgacctc | 2280 |
| atgaagctgg ctatggtgaa gctcttcccc aggctggagg aaatgggggc caggatgctc | 2340 |
| cttcaggctg ccaacgagct ggtcctcgag gccccaaaag agagggcgga ggccgtggcc | 2400 |
| cggctggcca aggaggtcat ggaggggggtg tatcccctgg ccgtgcccct ggaggtggag | 2460 |
| gtggggatag gggaggactg gctctccgcc aaggagcacc accaccacca ccac | 2514 |

<210> 136

<211> 320

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 136

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Met | Thr | Gly | Gly | Gln | Gln | Met | Gly | Arg | Ile | Asn | Ser | Gly |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val | Leu | Leu | Val | Asp | Gly |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | 20 | | 25 | | 30 | | | | | | | | | | | | | | |
| His | His | Leu | Ala | Tyr | Arg | Thr | Phe | His | Ala | Leu | Lys | Gly | Leu | Thr | Thr | | | | |
| | 35 | | | | | | 40 | | | | | 45 | | | | | | | |
| Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe | Ala | Lys | Ser | Leu | | | | |
| | 50 | | | | | 55 | | | | | 60 | | | | | | | | |
| Leu | Lys | Ala | Leu | Lys | Glu | Asp | Gly | Asp | Ala | Val | Ile | Val | Val | Phe | Asp | | | | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | | | | |
| Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Glu | Ala | Tyr | Gly | Gly | Tyr | Lys | Ala | | | | |
| | | | | 85 | | | | | 90 | | | | | 95 | | | | | |
| Gly | Arg | Ala | Pro | Thr | Leu | Val | Pro | Arg | Gly | Ser | Glu | Asp | Phe | Pro | Arg | | | | |
| | | | 100 | | | | | 105 | | | | | 110 | | | | | | |
| Gln | Leu | Ala | Leu | Ile | Lys | Glu | Leu | Val | Asp | Leu | Leu | Gly | Leu | Ala | Arg | | | | |
| | 115 | | | | | | 120 | | | | | 125 | | | | | | | |
| Leu | Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | | | |
| Lys | Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Lys | Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | | | |
| Glu | Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | |
| Arg | Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg | Ala | Leu | Thr | Gly | Asp | Glu | Ser | | | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | | | |
| Asp | Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Arg | Lys | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | |
| Leu | Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu | Ala | Leu | Leu | Lys | Asn | Leu | Asp | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Arg | Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys | Ile | Leu | Ala | His | Met | Asp | Asp | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Leu | Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys | Val | Arg | Thr | Asp | Leu | Pro | Leu | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |

Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg
275 280 285

Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly
290 295 300

Leu Leu Glu Ser Pro Lys Ala Ala Leu Glu His His His His His His
305 310 315 320

<210> 137

<211> 73

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 137

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tttaaaaatt tga 73

<210> 138

<211> 15

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 138

cgcgcggaac gcgcg 15

<210> 139

<211> 16

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic
 <400> 139
 cccgggtttt cccggg 16

 <210> 140
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 140
 aggcgcacca atttgggtgtt 20

 <210> 141
 <211> 53
 <212> RNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 141
 uucgcuuucu ucccuuccuu ucucgccacg uucgccggcu ucccccgua agc 53

 <210> 142
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 142
 acgggggaaag ccggcgaaacg tggcgagaaa 30

 <210> 143

<211> 26
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 143
 attagaaagg aagggaagaa agcgaa 26

 <210> 144
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 144
 acggggaaag ccggcgaacg tggcgagaac 30

 <210> 145
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 145
 cttgacgggg aaagccggcg aacgtggcgc 30

 <210> 146
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 146
 agaaaggaag ggaagaaagc gaa 23

<210> 147
 <211> 63
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 147
 gcgcggcggc ggggtgtggtg gttacgcgca gcgtgaccgc tacacttgcc agcgcctag 60
 cgc 63

<210> 148
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 148
 gcgctagggc gctggcaagt gtagcgggtca 30

<210> 149
 <211> 35
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 149
 gatcgctgcg cgtaaccacc acacccgcgc cgcgc 35

<210> 150
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 150
ggactctgcc tcaagacggt agtcaacgtg

30

<210> 151
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 151
cacgttgact accgtc

16

<210> 152
<211> 34
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 152
catgtcaagc agtcctaact ttgaggcaga gtcc

34

<210> 153
<211> 2506
<212> DNA
<213> Thermus aquaticus

<400> 153

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| atgaggggga | tgctgcccct | ctttgagccc | aagggccggg | tcctcctggt | ggacggccac | 60 |
| cacctggcct | accgcacctt | ccacgccctg | aagggcctca | ccaccagccg | gggggagccg | 120 |
| gtgcaggcgg | tctacggctt | cgccaagagc | ctcctcaagg | ccctcaagga | ggacggggac | 180 |
| gcggtgatcg | tggtccttga | cgccaaggcc | ccctccttcc | gccacgaggc | ctacgggggg | 240 |
| tacaaggcgg | gccgggcccc | cacgccggag | gactttcccc | ggcaactcgc | cctcatcaag | 300 |
| gagctggtgg | acctcctggg | gctggcgcg | ctcgagggtcc | cgggctacga | ggcggacgac | 360 |
| gtcctggcca | gcctggccaa | gaaggcggaa | aaggagggtct | acgagggtccg | catcctcacc | 420 |
| gccgacaaag | acctttacca | gctcctttcc | gaccgcatcc | acgtcctcca | ccccgagggg | 480 |
| tacctcatca | ccccggcctg | gctttgggaa | aagtacggcc | tgaggcccca | ccagtgggcc | 540 |
| gactaccggg | ccctgaccgg | ggacgagtcc | gacaaccttc | ccgggggtcaa | gggcatcggg | 600 |
| gagaagacgg | cgaggaagct | tctggaggag | tgggggagcc | tggaagccct | cctcaagaac | 660 |
| ctggaccggc | tgaagcccg | catccgggag | aagatcctgg | cccacatgga | cgatctgaag | 720 |
| ctctcctggg | acctggccaa | ggtgcgcacc | gacctgcccc | tggagggtgga | cttcgccaaa | 780 |
| aggcggggagc | ccgaccggga | gaggcttagg | gcctttctgg | agaggcttga | gtttggcagc | 840 |
| ctcctccacg | agttcggcct | tctggaaagc | cccaaggccc | tggaggaggc | cccctggccc | 900 |
| ccgccggaag | gggccttcgt | gggctttgtg | ctttcccgca | aggagcccat | gtgggcccgt | 960 |
| cttctggccc | tggccgccc | cagggggggc | cgggtccacc | gggcccccca | gccttataaa | 1020 |
| gccctcaggg | acctgaagga | ggcgcggggg | cttctcgcca | aagacctgag | cgttctggcc | 1080 |
| ctgagggaag | gccttggcct | ccgccccggc | gacgacccca | tgctcctcgc | ctacctctg | 1140 |
| gacccttcca | acaccacccc | cgaggggggtg | gcccggcgct | acggcgggga | gtggacggag | 1200 |
| gaggcggggg | agcgggccc | cctttccgag | aggtctctcg | ccaacctgtg | ggggaggcct | 1260 |
| gagggggagg | agaggctcct | ttggctttac | cgggagggtg | agaggccctt | ttccgctgtc | 1320 |
| ctggcccaca | tggaggccac | gggggtgcgc | ctggacgtgg | cctatctcag | ggccttgtcc | 1380 |
| ctggagggtg | ccgaggagat | cggccgcctc | gaggccgagg | tcttccgcct | ggccggccac | 1440 |
| cccttcaacc | tcaactcccc | ggaccagctg | gaaagggtcc | tctttgacga | gctagggcct | 1500 |
| cccgccatcg | gcaagacgga | gaagaccggc | aagcgctcca | ccagcgccgc | cgtcctggag | 1560 |
| gccctccgcg | aggccacccc | catcgtggag | aagatcctgc | agtaccggga | gctcaccaag | 1620 |
| ctgaagagca | cctacattga | ccccctgccc | gacctcatcc | accccaggac | gggcccgcctc | 1680 |
| cacacccgct | tcaaccagac | ggccacggcc | acgggcaggc | taagtagctc | cgatcccaac | 1740 |
| ctccagaaca | tccccgtccg | caccccgtct | gggcagagga | tccgcccggc | cttcatcgcc | 1800 |

| | |
|--------------------------------------------------------------------|------|
| gaggaggggt ggctattggt ggccctggac tatagccaga tagagctcag ggtgctggcc | 1860 |
| cacctctccg gcgacgagaa cctgatccgg gtcttccagg aggggcggga catccacacg | 1920 |
| gagaccgcca gctggatggt cggcgtcccc cgggaggccg tggaccccct gatgcgccgg | 1980 |
| gcggccaaga ccatcaactt cggggtcctc tacggcatgt cggcccaccg cctctcccag | 2040 |
| gagctagcca tcccttacga ggaggcccag gccttcattg agcgctactt tcagagcttc | 2100 |
| cccaaggtgc gggcctggat tgagaagacc ctggaggagg gcaggaggcg ggggtacgtg | 2160 |
| gagaccctct tcggccgccg ccgctacgtg ccagacctag agggccgggt gaagagcgtg | 2220 |
| cgggaggcgg ccgagcgcgt ggccttcaac atgcccgtcc agggcaccgc cgccgacctc | 2280 |
| atgaagctgg ctatggtgaa gctcttcccc aggctggagg aaatgggggc caggatgctc | 2340 |
| cttcagggtcc acgacgagct ggtcctcgag gccccaaaag agagggcgga ggccgtggcc | 2400 |
| cggctggcca aggaggtcat ggaggggggtg tatcccctgg ccgtgcccct ggaggtggag | 2460 |
| gtggggatag gggaggactg gctctccgcc aaggagtgat accacc | 2506 |

<210> 154

<211> 2496

<212> DNA

<213> *Thermus flavus*

<400> 154

| | |
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| atggcgatgc ttcccctctt tgagcccaaa ggccgcgtgc tcctggtgga cgcccaccac | 60 |
| ctggcctacc gcaccttctt tgccctcaag ggcctcacca ccagccgcgg cgaaccctt | 120 |
| caggcgggtct acggcttcgc caaaagcctc ctcaaggccc tgaaggagga cggggacgtg | 180 |
| gtggtggtgg tctttgacgc caaggccccc tccttcgcc acgaggccta cgaggcctac | 240 |
| aaggcggggc gggcccccac ccggaggac ttccccggc agctggccct catcaaggag | 300 |
| ttggtggacc tcctaggcct tgtgcggctg gaggttcccg gctttgaggc ggacgacgtg | 360 |
| ctggccaccc tggccaagcg ggcggaaaag gaggggtacg aggtgcgcgt cctcactgcc | 420 |
| gaccgcgacc tctaccagct cctttcggag cgcctcgcca tcctccaccc tgaggggtac | 480 |
| ctgatcacc cggcgtggct ttacgagaag tacggcctgc gcccgagca gtgggtggac | 540 |
| taccgggccc tggcggggga cccctcggt aacatccccg gggtagagg catcggggag | 600 |
| aagaccgccc agaggctcat ccgcgagtgg gggagcctgg aaaacctctt ccagcacctg | 660 |
| gaccaggtga agccctcctt gcgggagaag ctccaggcgg gcatggaggc cctggccctt | 720 |
| tcccgaagc tttcccaggt gcacactgac ctgcccctgg aggtggactt cgggaggcgc | 780 |

| | | | | | | |
|------------|-------------|-------------|------------|------------|------------|------|
| cgcacaccca | acctggaggg | tctgcgggct | tttttgagac | ggttggagtt | tggaagcctc | 840 |
| ctccacgagt | tcggcctcct | ggaggggccc | aaggcggcag | aggaggcccc | ctggccccct | 900 |
| ccggaagggg | cttttttggg | cttttccttt | tcccgccccg | agcccatgtg | ggccgagctt | 960 |
| ctggccctgg | ctggggcggtg | ggaggggccc | ctccatcggt | cacaagaccc | ccttaggggc | 1020 |
| ctgagggacc | ttaagggggg | gcggggaatc | ctggccaagg | acctggcggt | tttggccctg | 1080 |
| cgggagggcc | tggacctctt | cccagaggac | gaccccatgc | tcctggccta | ccttctggac | 1140 |
| ccctccaaca | ccaccctga | gggggtggcc | cgcggttacg | ggggggagtg | gacggaggat | 1200 |
| gcgggggaga | gggccctcct | ggccgagcgc | ctcttcacga | ccctaaagga | gcgccttaag | 1260 |
| ggagaagaac | gcctgctttg | gctttacgag | gaggtggaga | agccgctttc | ccgggtgttg | 1320 |
| gcccggatgg | aggccacggg | ggtccggctg | gacgtggcct | acctccaggc | cctctccctg | 1380 |
| gaggtggagg | cggaggtgcg | ccagctggag | gaggaggtct | tccgcctggc | cggccacccc | 1440 |
| ttcaacctca | actcccgca | ccagctggag | cgggtgctct | ttgacgagct | gggcctgcct | 1500 |
| gccatcggca | agacggagaa | gacggggaaa | cgctccacca | gcgctgccgt | gctggaggcc | 1560 |
| ctgcgagagg | cccaccccat | cgtggaccgc | atcctgcagt | accgggagct | caccaagctc | 1620 |
| aagaacacct | acatagaccc | cctgcccgcc | ctggtccacc | ccaagaccgg | ccggctccac | 1680 |
| acccgcttca | accagacggc | caccgccacg | ggcaggcttt | ccagctccga | ccccaacctg | 1740 |
| cagaacatcc | ccgtgcgcac | ccctctgggc | cagcgcatcc | gccgagcctt | cgtggccgag | 1800 |
| gagggctggg | tgctgggtgg | cttggaactac | agccagattg | agcttcgggt | cctggcccac | 1860 |
| ctctccgggg | acgagaacct | gatccgggtc | tttcaggagg | ggagggacat | ccacaccacg | 1920 |
| accgccagct | ggatgttcgg | cgtttccccc | gaaggggtag | accctctgat | gcgccggggc | 1980 |
| gccaagacca | tcaacttcgg | ggtgctctac | ggcatgtccg | cccaccgcct | ctccggggag | 2040 |
| ctttccatcc | cctacgagga | ggcgggtggc | ttcattgagc | gctacttcca | gagctacccc | 2100 |
| aaggtgcggg | cctggattga | ggggaccctc | gaggagggcc | gccggcgggg | gtatgtggag | 2160 |
| accctcttcg | gccgccggcg | ctatgtgcc | gacctcaacg | cccgggtgaa | gagcgtgcgc | 2220 |
| gaggcggcgg | agcgcatggc | cttcaacatg | ccggtccagg | gcaccgccgc | cgacctcatg | 2280 |
| aagctggcca | tgggtgcggct | tttcccccg | cttcaggaac | tgggggagag | gatgcttttg | 2340 |
| caggtgcacg | acgagctgg | cctcgaggcc | ccaaggacc | gggcggagag | ggtagccgct | 2400 |
| ttggccaagg | aggatcatgga | gggggtctgg | cccctgcagg | tggccctgga | ggtggaggtg | 2460 |
| ggcctggggg | aggactggct | ctccgccaag | gagtag | | | 2496 |

<210> 155

<211> 2505

<212> DNA

<213> *Thermus thermophilus*

<400> 155

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| cacctggcct accgcacctt cttcgccctg aagggcctca ccacgagccg gggcgaaccg | 120 |
| gtgcaggcgg tctacggctt cgccaagagc ctctcaagg ccctgaagga ggacgggtac | 180 |
| aaggccgtct tcgtgggtctt tgacgccaag gccccctct tccgccacga ggcctacgag | 240 |
| gcctacaagg cggggagggc cccgaccccc gaggacttcc cccggcagct cgccctcatc | 300 |
| aaggagctgg tggacctcct ggggtttacc cgcctcgagg tccccggcta cgaggcggac | 360 |
| gacgttctcg ccacctggc caagaaggcg gaaaaggagg ggtacgaggt gcgcatcctc | 420 |
| accgccgacc gcgacctcta ccaactcgtc tccgaccgcg tcgccgtcct ccaccccgag | 480 |
| ggccacctca tcaccccgga gtggctttgg gagaagtacg gcctcaggcc ggagcagtgg | 540 |
| gtggacttcc gcgccctcgt gggggacccc tccgacaacc tccccggggt caagggcatc | 600 |
| gggggagaaga ccgccctcaa gctcctcaag gagtggggaa gcctggaaaa cctcctcaag | 660 |
| aacctggacc gggtaaagcc agaaaacgtc cgggagaaga tcaaggccca cctggaagac | 720 |
| ctcaggctct ccttggagct ctcccggtg cgcaccgacc tccccctgga ggtggacctc | 780 |
| gcccaggggc gggagcccg cggggagggg cttagggcct tcctggagag gctggagttc | 840 |
| ggcagcctcc tcacgagtt cggcctcctg gaggccccg cccccctgga ggaggcccc | 900 |
| tggccccgc cggaaggggc cttcgtgggc ttctcctct cccgccccga gcccatgtgg | 960 |
| gcggagctta aagccctggc cgcctgcagg gacggccggg tgcaccgggc agcagacccc | 1020 |
| ttggcggggc taaaggacct caaggaggtc cggggcctcc tcgccaagga cctcgccgtc | 1080 |
| ttggcctcga gggaggggct agacctcgtg cccggggacg accccatgct cctcgccctac | 1140 |
| ctcctggacc cctccaacac ccccccgag ggggtggcgc ggcgctacgg gggggagtgg | 1200 |
| acggaggacg ccgcccaccg ggcctcctc tcggagaggc tccatcgga cctccttaag | 1260 |
| cgctcagagg gggaggagaa gctcctttgg ctctaccacg aggtggaaaa gcccctctcc | 1320 |
| cgggtcctgg ccacatgga ggccaccggg gtacggctgg acgtggccta ccttcaggcc | 1380 |
| ctttccctgg agcttgcgga ggagatccgc cgcctcgagg aggaggtctt ccgcttggcg | 1440 |
| ggccaccct tcaacctcaa ctccggggac cagctggaaa gggtgctctt tgacgagctt | 1500 |
| aggcttcccg ccttggggaa gacgaaaag acaggcaagc gctccaccag cgccgcggtg | 1560 |
| ctggaggccc tacgggaggc ccacccatc gtggagaaga tcctccagca ccgggagctc | 1620 |
| accaagctca agaacaccta cgtggacccc ctccaagcc tcgtccaccc gaggacgggc | 1680 |

| | |
|--------------------------------------------------------------------|------|
| cgctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac | 1740 |
| cccaacctgc agaacaatccc cgtccgcacc cccttggggc agaggatccg ccgggccttc | 1800 |
| gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccgcgtc | 1860 |
| ctcgcccacc tctccgggga cgaaaacctg atcaggggtct tccaggaggg gaaggacatc | 1920 |
| cacaccaga ccgcaagctg gatgttcggc gtcccccccg aggccgtgga cccctgatg | 1980 |
| cgccgggcgg ccaagacggt gaacttcggc gtctcttacg gcatgtccgc ccataggctc | 2040 |
| tcccaggagc ttgccatccc ctacgaggag gcggtggcct ttatagagcg ctacttccaa | 2100 |
| agcttcccca aggtgcgggc ctggatagaa aagaccctgg aggaggggag gaagcggggc | 2160 |
| tacgtggaaa ccctcttcgg aagaaggcgc tacgtgcccc acctcaacgc ccgggtgaag | 2220 |
| agcgtcaggg aggccgcgga gcgcatggcc ttcaacatgc ccgtccaggg caccgccgcc | 2280 |
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| ctggaccct | ccaacaccac | ccccgagggg | gtggcccggc | gctacggggg | ggagtggacg | 1200 |
| gaggangcgg | gggagcgggc | cctcctntcc | gagaggctct | tccngaacct | nnngcagcgc | 1260 |
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 35 40 45
 Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val
 50 55 60
 Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly
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 Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu
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 Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys
 115 120 125
 Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp
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 Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro
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 Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn
 180 185 190
 Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu
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 Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys
 225 230 235 240
 Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val
 245 250 255

Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe
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Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu
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Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
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Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp
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Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Pro
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Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu
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Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro
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Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
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Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
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Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr Gly
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Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala
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Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp
 485 490 495

Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg

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| Ser Thr Ser | Ala Ala Val | Leu Glu | Ala Leu Arg | Glu Ala | His Pro Ile | | | | | | | |
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| Val Glu Lys | Ile Leu Gln | Tyr Arg | Glu Leu Thr | Lys Leu | Lys Ser Thr | | | | | | | |
| 530 | | 535 | | 540 | | | | | | | | |
| Tyr Ile Asp | Pro Leu Pro | Asp Leu Ile | His Pro | Arg Thr | Gly Arg Leu | | | | | | | |
| 545 | | 550 | | 555 | | | | | | | 560 | |
| His Thr Arg | Phe Asn Gln | Thr Ala Thr | Ala Thr | Gly Arg | Leu Ser Ser | | | | | | | |
| | 565 | | 570 | | 575 | | | | | | | |
| Ser Asp Pro | Asn Leu Gln | Asn Ile Pro | Val Arg Thr | Pro Leu | Gly Gln | | | | | | | |
| | 580 | | 585 | | 590 | | | | | | | |
| Arg Ile Arg | Arg Ala Phe | Ile Ala Glu | Glu Gly Trp | Leu Leu | Val Ala | | | | | | | |
| | 595 | | 600 | | 605 | | | | | | | |
| Leu Asp Tyr | Ser Gln Ile | Glu Leu Arg | Val Leu Ala | His Leu | Ser Gly | | | | | | | |
| 610 | | 615 | | 620 | | | | | | | | |
| Asp Glu Asn | Leu Ile Arg | Val Phe Gln | Glu Gly Arg | Asp Ile | His Thr | | | | | | | |
| 625 | | 630 | | 635 | | | | | | | 640 | |
| Glu Thr Ala | Ser Trp Met | Phe Gly Val | Pro Arg Glu | Ala Val | Asp Pro | | | | | | | |
| | 645 | | 650 | | 655 | | | | | | | |
| Leu Met Arg | Arg Ala Ala | Lys Thr Ile | Asn Phe Gly | Val Leu | Tyr Gly | | | | | | | |
| | 660 | | 665 | | 670 | | | | | | | |
| Met Ser Ala | His Arg Leu | Ser Gln Glu | Leu Ala Ile | Pro Tyr | Glu Glu | | | | | | | |
| | 675 | | 680 | | 685 | | | | | | | |
| Ala Gln Ala | Phe Ile Glu | Arg Tyr Phe | Gln Ser Phe | Pro Lys | Val Arg | | | | | | | |
| | 690 | | 695 | | 700 | | | | | | | |
| Ala Trp Ile | Glu Lys Thr | Leu Glu Glu | Gly Arg Arg | Arg Gly | Tyr Val | | | | | | | |
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| Glu Thr Leu | Phe Gly Arg | Arg Arg Tyr | Val Pro Asp | Leu Glu | Ala Arg | | | | | | | |
| | 725 | | 730 | | 735 | | | | | | | |
| Val Lys Ser | Val Arg Glu | Ala Ala Glu | Arg Met Ala | Phe Asn | Met Pro | | | | | | | |
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Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val His
770 775 780

Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala
785 790 795 800

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Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Val Val Val Val Val
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Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu Ala Tyr
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Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala
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Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Val Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Arg Ala
115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu
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Tyr Gln Leu Leu Ser Glu Arg Ile Ala Ile Leu His Pro Glu Gly Tyr
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Leu Ile Thr Pro Ala Trp Leu Tyr Glu Lys Tyr Gly Leu Arg Pro Glu
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Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile
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Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Gln Arg Leu Ile Arg
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Glu Trp Gly Ser Leu Glu Asn Leu Phe Gln His Leu Asp Gln Val Lys
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Pro Ser Leu Arg Glu Lys Leu Gln Ala Gly Met Glu Ala Leu Ala Leu
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Ser Arg Lys Leu Ser Gln Val His Thr Asp Leu Pro Leu Glu Val Asp
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Phe Gly Arg Arg Arg Thr Pro Asn Leu Glu Gly Leu Arg Ala Phe Leu
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Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu
 275 280 285

Gly Pro Lys Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala
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Phe Leu Gly Phe Ser Phe Ser Arg Pro Glu Pro Met Trp Ala Glu Leu
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Leu Ala Leu Ala Gly Ala Trp Glu Gly Arg Leu His Arg Ala Gln Asp
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Pro Leu Arg Gly Leu Arg Asp Leu Lys Gly Val Arg Gly Ile Leu Ala
 340 345 350

Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly Leu Asp Leu Phe Pro
 355 360 365

Glu Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr

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| Ala | Gly | Glu | Arg | Ala 405 | Leu | Leu | Ala | Glu | Arg 410 | Leu | Phe | Gln | Thr | Leu 415 | Lys |
| Glu | Arg | Leu | Lys 420 | Gly | Glu | Glu | Arg | Leu 425 | Leu | Trp | Leu | Tyr | Glu 430 | Glu | Val |
| Glu | Lys 435 | Pro | Leu | Ser | Arg | Val | Leu 440 | Ala | Arg | Met | Glu | Ala 445 | Thr | Gly | Val |
| Arg 450 | Leu | Asp | Val | Ala | Tyr | Leu 455 | Gln | Ala | Leu | Ser | Leu 460 | Glu | Val | Glu | Ala |
| Glu 465 | Val | Arg | Gln | Leu | Glu 470 | Glu | Glu | Val | Phe | Arg 475 | Leu | Ala | Gly | His | Pro 480 |
| Phe | Asn | Leu | Asn | Ser 485 | Arg | Asp | Gln | Leu | Glu 490 | Arg | Val | Leu | Phe | Asp 495 | Glu |
| Leu | Gly | Leu | Pro 500 | Ala | Ile | Gly | Lys | Thr 505 | Glu | Lys | Thr | Gly | Lys 510 | Arg | Ser |
| Thr | Ser | Ala 515 | Ala | Val | Leu | Glu | Ala 520 | Leu | Arg | Glu | Ala | His 525 | Pro | Ile | Val |
| Asp 530 | Arg | Ile | Leu | Gln | Tyr | Arg 535 | Glu | Leu | Thr | Lys | Leu 540 | Lys | Asn | Thr | Tyr |
| Ile 545 | Asp | Pro | Leu | Pro | Ala 550 | Leu | Val | His | Pro | Lys 555 | Thr | Gly | Arg | Leu | His 560 |
| Thr | Arg | Phe | Asn | Gln 565 | Thr | Ala | Thr | Ala | Thr 570 | Gly | Arg | Leu | Ser | Ser 575 | Ser |
| Asp | Pro | Asn | Leu | Gln 580 | Asn | Ile | Pro | Val 585 | Arg | Thr | Pro | Leu | Gly 590 | Gln | Arg |
| Ile | Arg | Arg | Ala | Phe | Val | Ala | Glu 600 | Glu | Gly | Trp | Val | Leu 605 | Val | Val | Leu |
| Asp 610 | Tyr | Ser | Gln | Ile | Glu | Leu 615 | Arg | Val | Leu | Ala | His 620 | Leu | Ser | Gly | Asp |

Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr Gln
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Thr Ala Ser Trp Met Phe Gly Val Ser Pro Glu Gly Val Asp Pro Leu
645 650 655

Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met
660 665 670

Ser Ala His Arg Leu Ser Gly Glu Leu Ser Ile Pro Tyr Glu Glu Ala
675 680 685

Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Tyr Pro Lys Val Arg Ala
690 695 700

Trp Ile Glu Gly Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu
705 710 715 720

Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val
725 730 735

Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val
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Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Arg Leu Phe
755 760 765

Pro Arg Leu Gln Glu Leu Gly Ala Arg Met Leu Leu Gln Val His Asp
770 775 780

Glu Leu Val Leu Glu Ala Pro Lys Asp Arg Ala Glu Arg Val Ala Ala
785 790 795 800

Leu Ala Lys Glu Val Met Glu Gly Val Trp Pro Leu Gln Val Pro Leu
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Glu Val Glu Val Gly Leu Gly Glu Asp Trp Leu Ser Ala Lys Glu
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<220>
<221> MISC_FEATURE

<222> (417)..(418)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (431)..(431)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (551)..(551)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (605)..(605)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (773)..(773)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (794)..(794)
<223> X is any amino acid.

<220>
<221> MISC_FEATURE
<222> (798)..(798)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (823)..(823)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (833)..(833)

<223> X is any amino acid.

<400> 159

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Xaa | Ala | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val | Leu | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | Phe | Ala | Leu | Lys | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Ser | Leu | Leu | Lys | Ala | Leu | Lys | Glu | Asp | Gly | Asp | Ala | Val | Xaa | Val |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Phe | Asp | Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Glu | Ala | Tyr | Glu | Ala |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Lys | Ala | Gly | Arg | Ala | Pro | Thr | Pro | Glu | Asp | Phe | Pro | Arg | Gln | Leu |
| | | | | 85 | | | | | 90 | | | | | 95 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Ile | Lys | Glu | Leu | Val | Asp | Leu | Leu | Gly | Leu | Xaa | Arg | Leu | Glu |
| | | | 100 | | | | | 105 | | | | | | 110 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Thr | Leu | Ala | Lys | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Arg | Asp |
| | 130 | | | | | 135 | | | | | 140 | | | | |

Leu Tyr Gln Leu Leu Ser Asp Arg Ile Ala Val Leu His Pro Glu Gly
 145 150 155 160
 Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro
 165 170 175
 Glu Gln Trp Val Asp Tyr Arg Ala Leu Xaa Gly Asp Pro Ser Asp Asn
 180 185 190
 Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Xaa Lys Leu Leu
 195 200 205
 Xaa Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu Asp Arg Val
 210 215 220
 Lys Pro Xaa Xaa Arg Glu Lys Ile Xaa Ala His Met Glu Asp Leu Xaa
 225 230 235 240
 Leu Ser Xaa Xaa Leu Ser Xaa Val Arg Thr Asp Leu Pro Leu Glu Val
 245 250 255
 Asp Phe Ala Xaa Arg Arg Glu Pro Asp Arg Glu Gly Leu Arg Ala Phe
 260 265 270
 Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu
 275 280 285
 Glu Xaa Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly
 290 295 300
 Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu
 305 310 315 320
 Leu Leu Ala Leu Ala Ala Ala Arg Xaa Gly Arg Val His Arg Ala Xaa
 325 330 335
 Asp Pro Leu Xaa Gly Leu Arg Asp Leu Lys Glu Val Arg Gly Leu Leu
 340 345 350
 Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly Leu Asp Leu Xaa
 355 360 365
 Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn
 370 375 380
 Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu
 385 390 395 400

Asp Ala Gly Glu Arg Ala Leu Leu Ser Glu Arg Leu Phe Xaa Asn Leu
 405 410 415
 Xaa Xaa Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Xaa Glu
 420 425 430
 Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly
 435 440 445
 Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Val Ala
 450 455 460
 Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly His
 465 470 475 480
 Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp
 485 490 495
 Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg
 500 505 510
 Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile
 515 520 525
 Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Asn Thr
 530 535 540
 Tyr Ile Asp Pro Leu Pro Xaa Leu Val His Pro Arg Thr Gly Arg Leu
 545 550 555 560
 His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser
 565 570 575
 Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln
 580 585 590
 Arg Ile Arg Arg Ala Phe Val Ala Glu Glu Gly Trp Xaa Leu Val Ala
 595 600 605
 Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly
 610 615 620
 Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr
 625 630 635 640
 Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro

| 645 | | | | | | | | | | 650 | | | | | 655 | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr | Gly | | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | | |
| Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu | Glu | | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | | |
| Ala | Val | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val | Arg | | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | | |
| Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr | Val | | | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | | | |
| Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Asn | Ala | Arg | | | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | | | |
| Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met | Pro | | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | | |
| Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys | Leu | | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | | |
| Phe | Pro | Arg | Leu | Xaa | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val | His | | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | | |
| Asp | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Xaa | Arg | Ala | Glu | Xaa | Val | Ala | | | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | | | |
| Ala | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val | Pro | | | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | | | |
| Leu | Glu | Val | Glu | Val | Gly | Xaa | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys | Glu | | | | |
| | | | 820 | | | | | 825 | | | | | 830 | | | | | | |

Xaa

<210> 160

<211> 640

<212> RNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 160

| | | | | | | |
|------------|------------|-------------|------------|------------|------------|-----|
| gggagcccag | cuaugaacuc | cuucuccaca | agcgccuucg | guccaguugc | cuucucccug | 60 |
| gggcugcucc | ugguguugcc | ugcugccuuc | ccugccccag | uacccccagg | agaagauucc | 120 |
| aaagauguag | ccgccccaca | cagacagcca | cucaccucuu | cagaacgaau | ugacaaacaa | 180 |
| auucgguaca | uccucgacgg | caucucagcc | cugagaaagg | agacauguaa | caagaguaac | 240 |
| augugugaaa | gcagcaaaga | ggcacuggca | gaaaacaacc | ugaaccuucc | aaagauggcu | 300 |
| gaaaaaagau | gaugcuucca | aucuggauuc | aaugaggaga | cuugccuggu | gaaaaucauc | 360 |
| acuggucuuu | uggaguuuga | ggauauaccua | gaguaccucc | agaacagauu | ugagaguagu | 420 |
| gaggaacaag | ccagagcugu | ccagaugagu | acaaaagucc | ugauccaguu | ccugcagaaa | 480 |
| aaggcaaaga | aucuagaugc | aauaaccacc | ccugacccaa | ccacaaaugc | cagccugcug | 540 |
| acgaagcugc | aggcacagaa | ccaguggcug | caggacauga | caacucaucu | cauucugcgc | 600 |
| agcuuuuagg | aguuccugca | guccagccug | agggcucuuc | | | 640 |

<210> 161

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 161

| | | | |
|------------|------------|---------|----|
| agggagaagg | caactggacc | gaaggcc | 27 |
|------------|------------|---------|----|

<210> 162

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (1)..(1)

<223> TH 5' end has a fluorescein label.

<220>

<221> misc_feature

<222> (35)..(35)

<223> TH 3' end is modified with a dideoxynucleotide.

<400> 162

ncgaaattaa tacgcttggtg gagaaggagt tcatn

35

<210> 163

<211> 53

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 163

gctatgaact ccttctccac aagcgccttc ggtccagttg ccttctccct ggg

53

<210> 164

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 164

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
1 5 10 15

Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu
20 25 30

Phe Ala Asn Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp
 35 40 45
 Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met
 50 55 60
 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser
 65 70 75 80
 Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg
 85 90 95
 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 100 105 110
 Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys
 115 120 125
 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 130 135 140
 Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys
 145 150 155 160
 Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg
 165 170 175
 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 180 185 190
 Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 195 200 205
 Pro Leu Gly Gln Arg Ile
 210

<210> 165

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 165

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
1 5 10 15

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
20 25 30

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
35 40 45

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
50 55 60

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
65 70 75 80

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
85 90 95

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
100 105 110

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
115 120 125

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
130 135 140

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
145 150 155 160

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
165 170 175

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
180 185 190

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
195 200 205

Pro Leu Gly Gln Arg Ile
210

<210> 166

<211> 37

<212> RNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <220>
 <221> misc_feature
 <222> (1)..(1)
 <223> TH 5' end is modified with a biotin-streptavitin complex.

<400> 166
 nucacggcag uuggugcgcc ucggaacgag gcgcacg

37

<210> 167
 <211> 17
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <220>
 <221> misc_feature
 <222> (1)..(1)
 <223> TH 5' end is labeled with tetrachlororfluorescein.

<400> 167
 nttttcaact gccgtga

17

<210> 168
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 168
 tcacggcagt tggcgcgcct cggaacgagg cgcacg 36

<210> 169
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 169
 cgccgagatc acctttacat tttctatcgt 30

<210> 170
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 170
 ccttccttat cctggatctt ggca 24

<210> 171
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 171
 acgatagaaa atgtaaaggt gatc 24

<210> 172
<211> 15
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (4)..(4)
<223> The residue at this position is a z28 linker group.

<400> 172
ctcntttctca gtgcg 15

<210> 173
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 173
cgcagtgaga atgaggtgat ctcggcggt 29

<210> 174
<211> 31
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 174
ccgccgagat cacggatggt gtaatcagag a 31

<210> 175
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 175
gtgcagggtt gactccttct c

21

<210> 176
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 176
gtgcagggtt gactctttct c

21

<210> 177
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 177
gtgcagggtc gactctttct c

21

<210> 178
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 178
 tctctgatta caacatccgt gatct 25

 <210> 179
 <211> 29
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 179
 cgccgagatc acgtagttga ggtcaatga 29

 <210> 180
 <211> 27
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 180
 gaatcatact ggaacatgta gaccatc 27

 <210> 181
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 181
 tcattgacct caactacgtg atct 24

<210> 182
 <211> 28
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 182
 ccgccgagat cacgatgatc ttgaggct

28

<210> 183
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 183
 tgggtgcagga ggcattgctc

20

<210> 184
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 184
 cagcctcaag attaccgtga tct

23

<210> 185
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 185
 ccgtcacgcc tcctccacgg ctc 23

 <210> 186
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 186
 aggcgaaagc cctcaatttc cca 23

 <210> 187
 <211> 15
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 187
 aaccactgcc gcaca 15

 <210> 188
 <211> 17
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 188
 gagccgtgga ggaggcg 17

<210> 189
<211> 14
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (4)..(4)
<223> The residue at this position is a z28 linker group.

<400> 189
cacntgcttc gtgg

14

<210> 190
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 190
ccaggaagca agtggaggcg tgacggt

27

<210> 191
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 191

ccgtcacgcc tccttcggag tttggg 26

<210> 192

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 192

gggttggtgga gtgagtgttc aagta 25

<210> 193

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 193

gggaaactcc gaaggaggcg 20

<210> 194

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 194

ccgtcacgcc tctctgactg cca 23

<210> 195

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 195

ttgtcactcg gggttcgaga agatgaa

27

<210> 196

<211> 11

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 196

gggccagagg g

11

<210> 197

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 197

aggcagtcag agaggcg

17

<210> 198

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 198
ccgtcacgcc tcctcctcat tgaatt 26

<210> 199

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 199
ccaaaagtcc agtgatgatt ttcaccaggc aagta 35

<210> 200

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 200
cagattggaa gcatccatct 20

<210> 201

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 201
gattcaatga ggaggaggc 19

<210> 202

<211> 24

<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 202
ccgtcacgcc tccatctggt tagg

24

<210> 203

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 203
caggtcctgg aaggagcact ta

22

<210> 204

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 204
gccatcagct tctttgttct tgtcac

27

<210> 205

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic
 <400> 205
 gccctaaaca gatggaggcg 20

 <210> 206
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 206
 ccgtcacgcc tcctccagtt gtag 24

 <210> 207
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 207
 aaaatcatct gtaaattccag cagtaaatga 30

 <210> 208
 <211> 20
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 208
 ctgtgttttc tttgtagaac 20

 <210> 209

<211> 17
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 209
ctacaactgg aggaggc

17

<210> 210

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 210
ccgtcacgcc tcctctcagt tct

23

<210> 211

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 211
gtgtggtcca ctctcaatca a

21

<210> 212

<211> 26

<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic
<220>
<221> modified_base
<222> (1)..(1)
<223> The residue at tH position contains a TET-label.

<400> 212
attagaaagg aaggaagaa agcgaa

26

<210> 213
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 213
gcttgacggg gaaagccggc gaacgtggcg

30

<210> 214
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 214
cttgacgggg aaagccggcg aacgtggcga

30

<210> 215
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 215
 tgacggggaa agccggcgaa cgtggcgaga 30

 <210> 216
 <211> 30
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 216
 acgggggaaag ccggcgaaacg tggcgagaaa 30

 <210> 217
 <211> 53
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 217
 ttcgctttct tcccttcctt tctcgccacg ttcgccggct ttccccgtca agc 53

 <210> 218
 <211> 18
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <220>
 <221> modified_base

<222> (1)..(1)

<223> The residue at tH positions contains a fluorescein label.

<400> 218
 tttccctcct cctcttcc 18

<210> 219

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 219
 acacagtgtc ctcccgtcc tcctgagcaa 30

<210> 220

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 220
 atgaggaaga ggaggagggt gctcaggagg agcgggagga cactgtgtct gtca 54

<210> 221

<211> 840

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 221

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1 5 10 15
 Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30
 Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45
 Phe Ala Lys Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Ala Val
 50 55 60
 Ile Val Val Phe Asp Ala Glu Ala Pro Ser Phe Arg His Glu Ala Tyr
 65 70 75 80
 Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg
 85 90 95
 Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg
 100 105 110
 Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala
 115 120 125
 Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp
 130 135 140
 Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro
 145 150 155 160
 Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu
 165 170 175
 Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser
 180 185 190
 Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu Lys
 195 200 205
 Leu Leu Lys Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp
 210 215 220
 Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp
 225 230 235 240
 Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu
 245 250 255

Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys
 260 265 270

Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly
 275 280 285

Leu Leu Gly Gly Glu Lys Pro Arg Glu Glu Ala Pro Trp Pro Pro Pro
 290 295 300

Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp
 305 310 315 320

Ala Asp Leu Leu Ala Leu Ala Ala Cys Arg Gly Gly Arg Val His Arg
 325 330 335

Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly
 340 345 350

Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp
 355 360 365

Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro
 370 375 380

Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp
 385 390 395 400

Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg
 405 410 415

Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr
 420 425 430

His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala
 435 440 445

Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu
 450 455 460

Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala
 465 470 475 480

Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu
 485 490 495

Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys Thr Gly

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val
755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln
770 775 780

Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu
785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala
805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala
820 825 830

Lys Gly His His His His His His
835 840

<210> 222

<211> 2520

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 222

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atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac      60
ggccaccacc tggcctaccg tacctttttt gccctgaagg gcctcaccac cagccggggg      120
gagccggtcc aggcggtgta cgggtttgcc aagagccttt tgaaggcgct aagagaagac      180
gggggacgcgg tgatcgtggt ctttgacgcc gaggccccct ccttcgcga cgaggcctac      240
gggggggtaca aggcggggcg ggctcccacc cccgaggact ttccccgga gcttgccctt      300
atcaaggagc tgggtggacct cctgggggtt accgcctcg aggtccccgg ctacgaggcg      360
gacgacgttc tcgccaccct ggccaagaag gcggaaaagg aggggtacga ggtgcgcac      420
ctcaccgccg acaaagacct ttaccagctc ctttcgcacc gcatccacgt cctccacccc      480
gaggggtacc tcatcacccc ggcttggtt tgggaaaagt acggcctgag gcccgaccag      540
tgggccgact accgggccct gaccggggac gagtccgaca accttcccgg ggtcaagggc      600
atcggggaga agaccgccct caagctctc aaggagtggg ggagcctgga agccctctc      660
aagaacctgg accggctgaa gcccgccatc cgggagaaga tcctggccca catggacgat      720

```

| | | | | | | |
|------------|------------|-------------|-------------|------------|-------------|------|
| ctgaagctct | cctgggacct | ggccaagggtg | cgcaccgacc | tgcccctgga | ggtggacttc | 780 |
| gccaaaaggc | gggagcccca | ccgggagggg | cttaaggcct | ttttggagag | gctggagttc | 840 |
| ggcagcctcc | tccacgagtt | cggcctcctg | ggaggggaga | agccccggga | ggaggcccc | 900 |
| tggccccgc | cgaaggggc | cttcgtgggc | tttgtgcttt | cccgaagga | gcccattgtg | 960 |
| gccgatcttc | tggccctggc | cgcctgcagg | ggcggccgcg | tgcaccgggc | agcagacccc | 1020 |
| ttggcggggc | taaaggacct | caaggaggtc | cggggcctcc | tcgccaagga | cctcgccgtc | 1080 |
| ttggcctcga | gggaggggct | agacctcgtg | cccggggacg | accccatgct | cctcgccctac | 1140 |
| ctcctggacc | cttcgaacac | cacccccgag | ggggtggcgc | ggcgctacgg | gggggagtgg | 1200 |
| acggaggacg | ccgcccaccg | ggccctcctc | tcggagaggc | tccatcggaa | cctccttaag | 1260 |
| cgcctcgagg | gggaggagaa | gctcctttgg | ctctaccacg | aggtggaaaa | gccccctctcc | 1320 |
| cgggtccttg | cccatatgga | ggccaccggg | gtacggcggg | acgtggccta | ccttcaggcc | 1380 |
| ctttccctgg | agcttgcgga | ggagatccgc | cgcctcgagg | aggaggtctt | ccgcttggcg | 1440 |
| ggccaccctt | tcaacctcaa | ctcccgggac | cagctggaaa | gggtgctctt | tgacgagctt | 1500 |
| aggcttccc | ccttgaagaa | gacgaagaag | acaggcaagc | gctccaccag | cgccgcggtg | 1560 |
| ctggaggccc | tacgggaggc | ccaccccatc | gtggagaaga | tcctccagca | ccgggagctc | 1620 |
| accaagctca | agaacaccta | cgtggacccc | ctcccaagcc | tcgtccaccc | gaggacgggc | 1680 |
| cgcctccaca | cccgttcaa | ccagacggcc | acggccacgg | ggaggcttag | tagctccgac | 1740 |
| cccaacctgc | agaacatccc | cgtccgcacc | cccttgggcc | agaggatccg | ccgggccttc | 1800 |
| gtggccgagg | cgggttgggc | gttgggtggc | ctggactata | gccagataga | gctccgcgtc | 1860 |
| ctcgcccacc | tctccgggga | cgaaaacctg | atcagggtct | tccaggaggg | gaaggacatc | 1920 |
| cacaccagga | ccgcaagctg | gatgttcggc | gtcccccccg | aggccgtgga | ccccctgatg | 1980 |
| cgcggggcgg | ccaagacggt | gaacttcggc | gtcctctacg | gcatgtccgc | ccataggctc | 2040 |
| tcccaggagc | ttgccatccc | ctacgaggag | gcgggtggcct | ttatagagcg | ctacttccaa | 2100 |
| agcttcccca | aggtgcgggc | ctggatagaa | aagaccctgg | aggaggggag | gaagcggggc | 2160 |
| tacgtggaaa | ccctcttcgg | aagaaggcgc | tacgtgccc | acctcaacgc | ccgggtgaag | 2220 |
| agcgtcaggg | aggccgcgga | gcgcatggcc | ttcaacatgc | cgtccagg | caccgcgcgc | 2280 |
| gacctcatga | agctcgccat | ggtgaagctc | ttcccccgcc | tccgggagat | gggggcccgc | 2340 |
| atgctcctcc | aggtcgccaa | cgagctcctc | ctggaggccc | cccaagcgcg | ggccgaggag | 2400 |
| gtggcggctt | tggccaagga | ggccatggag | aaggcctatc | ccctcgccgt | gccccctggag | 2460 |
| gtggagggtg | ggatggggga | ggactggctt | tccgccaagg | gtcaccacca | ccaccaccac | 2520 |

<210> 223

<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (1)..(1)
<223> TH 5' end has a fluorescein label.

<220>
<221> misc_feature
<222> (6)..(6)
<223> The residue at tH position is a cy3 abasic linker group.

<400> 223
ncgctntctc gctcgc

16

<210> 224
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 224
acggaacgag cgtctttg

18

<210> 225
<211> 32
<212> RNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 225

gcgagcgaga cagcgaaaaga cgcucguucc gu

32

<210> 226

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 226

gcgagcgaga cagcgaaaaga cgctcgttcc gt

32

<210> 227

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 227

acggaacgag cgtctttcat ctgtcaatc

29

<210> 228

<211> 26

<212> RNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 228

ucacggcagu uggugcggaa cgcacg

26

<210> 229
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 229
tcacggcagt tgggtgcggaa cgcacg

26

<210> 230
<211> 30
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (30)..(30)

<223> TH 3' end is modified with an amine moiety.

<400> 230
cggaggaagc agttggtgcg cctcgttaan

30

<210> 231
<211> 23
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (1)..(1)

<223> TH 5' end is labeled with fluorescein.

<400> 231

ntccttctca actgcttcct ccg

23

<210> 232

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (28)..(28)

<223> TH 3' end is modified with a biotin moiety.

<400> 232

aacgaggcgc acctcaaadc tccctttt

28

<210> 233

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (1)..(1)

<223> TH 5' end is labeled with fluorescein.

<400> 233
nagcgagaca gcgaaagacg ctcgtt

26

<210> 234

<211> 17

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc_feature

<222> (1)..(1)

<223> TH 5' end is labeled with fluorescein.

<400> 234
nttttcgctg tctcgct

17

<210> 235

<211> 13

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 235
acgagcgtct ttg

13

<210> 236

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 236

cacgaattcg gggatgctgc ccctctttga gcccaa

36

<210> 237

<211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 237

gtgagatcta tcactccttg gcggagagcc agtc

34

<210> 238

<211> 2502

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 238

atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60
caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag 120
ccggtgcagg cggctacagg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180
gacgcggtga tcgtggtcct tgacgccaag gccccctcct tccgccacga ggcctacggg 240
gggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgcctcatc 300
aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac 360
gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc 420
accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480
gggtacctca tcaccccggc ctggcttttg gaaaagtacg gcctgaggcc cgaccagtgg 540
gccgactacc gggccctgac cggggacgag tccgacaacc tcccgggggt caagggcatc 600
ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660
aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|------|
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggg | ggccgggtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgccc | ggcgacgacc | ccatgctcct | cgctacctc | 1140 |
| ctggaccctt | ccaacaccac | ccccgagggg | gtggcccgcc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gtgggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | acatggaggc | cacgggggtg | cgcttgagcg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgggga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcga | tcggcaagac | ggagaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacccttg | ccggacctca | tccacccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggaggggcg | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttcccgaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgtac | gtgccagacc | tagaggcccc | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccg | tccggggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggt | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |
| ctccttcagg | tccacgacga | gctggtcctc | gaggcccaa | aagagagggc | ggaggccgtg | 2400 |
| gccccgctgg | ccaaggaggt | catggagggg | gtgtatcccc | tggccgtgcc | cctggagggtg | 2460 |
| gaggtgggga | taggggagga | ctggctctcc | gccaaaggagt | ga | | 2502 |

<210> 239

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 239

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Gly Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

| 690 | 695 | 700 |
|------------------------------------------------------------------------------------|----------------------------------------------------|----------------------------|
| Arg 705 | Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly 710 715 | Arg Arg Arg Gly Tyr 720 |
| Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735 | | |
| Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750 | | |
| Pro Val Arg Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765 | | |
| Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 775 780 | | |
| His Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800 | | |
| Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815 | | |
| Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830 | | |

Glu

<210> 240

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 240

cacgaattcc gaggcgatgc ttccgctc

28

<210> 241

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 241

tcgacgtcga ctaacccttg gcggaaagcc

30

<210> 242

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 242

gcatcgctc ggaattcatg gtc

23

<210> 243

<211> 836

<212> PRT

<213> Thermus thermophilus

<400> 243

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Ser | Glu | Ala | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | Phe | Ala | Leu |
| | | | 20 | | | | | 25 | | | | | 30 | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Ala | Lys | Ser | Leu | Leu | Lys | Ala | Leu | Lys | Glu | Asp | Gly | Tyr | Lys | Ala |
| | 50 | | | | | 55 | | | | | 60 | | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Phe | Val | Val | Phe | Asp | Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Glu | Ala |
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Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
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Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
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Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
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Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
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Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
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Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
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Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr

| 580 | | | | | 585 | | | | | 590 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Leu | Gly | Gln | Arg | Ile | Arg | Arg | Ala | Phe | Val | Ala | Glu | Ala | Gly | Trp |
| | | 595 | | | | | 600 | | | | | 605 | | | |
| Ala | Leu | Val | Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala |
| | 610 | | | | | 615 | | | | | 620 | | | | |
| His | Leu | Ser | Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Lys |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Asp | Ile | His | Thr | Gln | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Pro | Glu |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Ala | Val | Asp | Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Val | Asn | Phe | Gly |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Val | Leu | Tyr | Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Pro | Tyr | Glu | Glu | Ala | Val | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe |
| | 690 | | | | | 695 | | | | | 700 | | | | |
| Pro | Lys | Val | Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Lys |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Arg | Gly | Tyr | Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Leu | Asn | Ala | Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Phe | Asn | Met | Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Met | Val | Lys | Leu | Phe | Pro | Arg | Leu | Arg | Glu | Met | Gly | Ala | Arg | Met | Leu |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| Leu | Gln | Val | His | Asp | Glu | Leu | Leu | Leu | Glu | Ala | Pro | Gln | Ala | Arg | Ala |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Glu | Glu | Val | Ala | Ala | Leu | Ala | Lys | Glu | Ala | Met | Glu | Lys | Ala | Tyr | Pro |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Leu | Ala | Val | Pro | Leu | Glu | Val | Glu | Val | Gly | Met | Gly | Glu | Asp | Trp | Leu |
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Ser Ala Lys Gly
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<211> 2511

<212> DNA

<213> *Thermus thermophilus*

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gaaccgggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac      180
gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcog ccacgaggcc      240
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| gagcttaggc ttccgcctt ggggaagacg caaaagacag gcaagcgctc caccagcgcc | 1560 |
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| gagctcacca agctcaagaa cacctacgtg gacccctcc caagcctcgt ccacccgagg | 1680 |
| acgggcccgc tccacaccg cttcaaccag acggccacgg ccacggggag gcttagtagc | 1740 |
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| gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc | 1860 |
| cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggctttcca ggaggggaag | 1920 |
| gacatccaca ccagaccgc aagctggatg ttcggcgtcc ccccgaggc cgtggacccc | 1980 |
| ctgatgcgcc gggcgccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccac | 2040 |
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| gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg | 2340 |
| gcccgcatgc tctccaggt ccacgacgag ctctcctgg agggcccca agcgcgggcc | 2400 |
| gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatccct cgccgtgccc | 2460 |
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| ccggtgcaga | tgggtctacgg | cttcgcccgg | agcctcctca | aggccttgaa | ggaggacgga | 180 |
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| ggggagaaga | ccgcccttcg | actcctcgca | gagtggggga | gcgtggaaaa | cctcctgaag | 660 |
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| ctccacctct | ccttagacct | ggcccgcatc | cgcaccgacc | tccccctgga | ggtggacttt | 780 |
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| ggcctcacc | cgggtggccg | gacggagaag | acgggcaagc | gctccaccgc | ccagggggcc | 1560 |
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| tccaagctca | aaagcaccta | cctggacccc | ctgccccggc | tcgtccaccc | gcggacgggc | 1680 |
| cggctccaca | cccgttcaa | ccagacggcc | acggccacgg | gaaggctttc | cagctccgac | 1740 |
| cccaacctgc | agaacatccc | cgtgcgcacc | cccttggggc | agcgcatacc | caaggccttc | 1800 |
| gtggccgagg | aggggtggct | ccttttggcg | gcggactact | cccagattga | gctccgggtc | 1860 |
| ctggcccacc | tctcggggga | cgagaacctg | aagcgggtct | tccgggaggg | gaaggacatc | 1920 |

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Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe
35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val
50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu
65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|
| | 100 | | 105 | | 110 | | | | | | | | | | | | | | |
| Glu | Ala | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Gly | Thr | Leu | Ala | Lys | | | | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | | | |
| Lys | Ala | Glu | Arg | Glu | Gly | Met | Glu | Val | Arg | Ile | Leu | Thr | Gly | Asp | Arg | | | | |
| | 130 | | | | | 135 | | | | | 140 | | | | | | | | |
| Asp | Phe | Phe | Gln | Leu | Leu | Ser | Glu | Lys | Val | Ser | Val | Leu | Leu | Pro | Asp | | | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | | | |
| Gly | Thr | Leu | Val | Thr | Pro | Lys | Asp | Val | Gln | Glu | Lys | Tyr | Gly | Val | Pro | | | | |
| | | | | 165 | | | | | 170 | | | | | 175 | | | | | |
| Pro | Glu | Arg | Trp | Val | Asp | Phe | Arg | Ala | Leu | Thr | Gly | Asp | Arg | Ser | Asp | | | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | | | |
| Asn | Ile | Pro | Gly | Val | Ala | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Leu | Arg | Leu | | | | |
| | 195 | | | | | | 200 | | | | | 205 | | | | | | | |
| Leu | Ala | Glu | Trp | Gly | Ser | Val | Glu | Asn | Leu | Leu | Lys | Asn | Leu | Asp | Arg | | | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | | | |
| Val | Lys | Pro | Asp | Ser | Leu | Arg | Arg | Lys | Ile | Glu | Ala | His | Leu | Glu | Asp | | | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | | | |
| Leu | His | Leu | Ser | Leu | Asp | Leu | Ala | Arg | Ile | Arg | Thr | Asp | Leu | Pro | Leu | | | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | | | |
| Glu | Val | Asp | Phe | Lys | Ala | Leu | Arg | Arg | Arg | Thr | Pro | Asp | Leu | Glu | Gly | | | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | | | |
| Leu | Arg | Ala | Phe | Leu | Glu | Glu | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | | | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | | | |
| Phe | Gly | Leu | Leu | Gly | Gly | Glu | Lys | Pro | Arg | Glu | Glu | Ala | Pro | Trp | Pro | | | | |
| | 290 | | | | | 295 | | | | | 300 | | | | | | | | |
| Pro | Pro | Glu | Gly | Ala | Phe | Val | Gly | Phe | Leu | Leu | Ser | Arg | Lys | Glu | Pro | | | | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | | | | |
| Met | Trp | Ala | Glu | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Ser | Glu | Gly | Arg | Val | | | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | | | |
| His | Arg | Ala | Thr | Ser | Pro | Val | Glu | Ala | Leu | Ala | Asp | Leu | Lys | Glu | Ala | | | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | | | |

Arg Gly Phe Leu Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly
 355 360 365

Val Ala Leu Asp Pro Thr Asp Asp Pro Leu Leu Val Ala Tyr Leu Leu
 370 375 380

Asp Pro Ala Asn Thr His Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Phe Thr Glu Asp Ala Ala Glu Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

Phe Gln Asn Leu Phe Pro Arg Leu Ser Glu Lys Leu Leu Trp Leu Tyr
 420 425 430

Gln Glu Val Glu Arg Pro Leu Ser Arg Val Leu Ala His Met Glu Ala
 435 440 445

Arg Gly Val Arg Leu Asp Val Pro Leu Leu Glu Ala Leu Ser Phe Glu
 450 455 460

Leu Glu Lys Glu Met Glu Arg Leu Glu Gly Glu Val Phe Arg Leu Ala
 465 470 475 480

Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu
 485 490 495

Phe Asp Glu Leu Gly Leu Thr Pro Val Gly Arg Thr Glu Lys Thr Gly
 500 505 510

Lys Arg Ser Thr Ala Gln Gly Ala Leu Glu Ala Leu Arg Gly Ala His
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Pro Ile Val Glu Leu Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys
 530 535 540

Ser Thr Tyr Leu Asp Pro Leu Pro Arg Leu Val His Pro Arg Thr Gly
 545 550 555 560

Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu
 565 570 575

Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu
 580 585 590

Gly Gln Arg Ile Arg Lys Ala Phe Val Ala Glu Glu Gly Trp Leu Leu
 595 600 605

Leu Ala Ala Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu
 610 615 620

Ser Gly Asp Glu Asn Leu Lys Arg Val Phe Arg Glu Gly Lys Asp Ile
 625 630 635 640

His Thr Glu Thr Ala Ala Trp Met Phe Gly Leu Asp Pro Ala Leu Val
 645 650 655

Asp Pro Lys Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu
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Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Gly Ile Asp Tyr
 675 680 685

Lys Glu Ala Glu Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys
 690 695 700

Val Arg Ala Trp Ile Glu Arg Thr Leu Glu Glu Gly Arg Thr Arg Gly
 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Ala
 725 730 735

Ser Arg Val Arg Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn
 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Ile Ala Met Val
 755 760 765

Lys Leu Phe Pro Arg Leu Lys Pro Leu Gly Ala His Leu Leu Leu Gln
 770 775 780

Val His Asp Glu Leu Val Leu Glu Val Pro Glu Asp Arg Ala Glu Glu
 785 790 795 800

Ala Lys Ala Leu Val Lys Glu Val Met Glu Asn Ala Tyr Pro Leu Asp
 805 810 815

Val Pro Leu Glu Val Glu Val Gly Val Gly Arg Asp Trp Leu Glu Ala
 820 825 830

Lys Gln Asp
 835

<210> 251

<211> 31
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 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 251
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<210> 252

<211> 30

<212> DNA

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<220>

<223> Synthetic

<400> 252
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<210> 253

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 253
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 ctggcctacc gtaccttttt tgccctgaag ggcctcacca ccagccgcgg ggagccggtc 120
 caggcggtgt acgggtttgc caagagcctt ttgaaggcgc taagggaaga cggggatgtg 180
 gtgatcgtgg tgtttgacgc caaggccccc tccttcgcgc accagacctc cgaggcctac 240
 aaggcggggc gggctccac ccccgaggac tttcccgcgc agcttgcct tatcaaggag 300
 atggtggacc ttttgggcct ggagcgcctc gaggtgccgg gctttgaagc ggatgacgtc 360
 ctggctaccc tggccaagaa ggcgaaaaag gaaggctacg aagtgcgcac cctcaccgcg 420

| | | | | | | |
|-------------|------------|------------|------------|------------|------------|------|
| gaccgggacc | tttaccagct | tctttcggag | cgaatctcca | tccttcaccc | ggagggttac | 480 |
| ctgatcaccc | cggagtggct | ttgggagaag | tatgggctta | agccttccca | gtgggtggac | 540 |
| taccgggcct | tggccgggga | cccttccgac | aacatccccg | gcgtgaaggg | catcggggag | 600 |
| aagacggcgg | ccaagctgat | ccgggagtgg | ggaagcctgg | aaaaccttct | taagcacctg | 660 |
| gaacaggtga | aacctgcctc | cgtgcgggag | aagatcctta | gccacatgga | ggacctcaag | 720 |
| ctatccctgg | agctatcccc | ggtgcacacg | gacttgctcc | ttcaggtgga | cttcgcccgg | 780 |
| cgccgggagc | cggaccggga | ggggcttaag | gccttttttg | agaggctgga | gttcggaagc | 840 |
| ctcctccacg | agttcggcct | gttggaagc | ccggtggcgg | cggaggaagc | tccctggccg | 900 |
| ccccccgagg | gagccttcgt | ggggtacgtt | ctttcccgc | ccgagcccat | gtgggcggag | 960 |
| cttaacgcct | tggccgcgc | ctgggaggga | agggtttacc | gggcggagga | tcccttgga | 1020 |
| gccttgccgg | ggcttgggga | ggtgaggggg | cttttgggca | aggacctggc | ggtgctggcc | 1080 |
| ctgaggggaag | ggattgccct | ggcaccgggc | gacgacccca | tgctcctcgc | ctacctctg | 1140 |
| gatccttcca | acaccgcccc | cgaaggggta | gcccggcgct | acggggggga | gtggaccgag | 1200 |
| gaggcggggg | aaaggcgct | gctttccgaa | aggctttacg | ccgccctcct | ggagcggcct | 1260 |
| aagggggagg | agaggcttct | ttggctttac | gaggaggtgg | aaaagcccc | ttcgcgggtc | 1320 |
| ctggcccaca | tggaggccac | gggggtacgg | ttggatgtgg | cctacttaaa | ggccctttcc | 1380 |
| ctggaggtgg | aggcgagat | aaggcgcttc | gaggaggagg | tccaccgct | ggccgggcat | 1440 |
| cctttcaacc | tgaactcccc | ggaccagctg | gaaagggta | tctttgacga | gcttgggctt | 1500 |
| cccgccatcg | gcaagacgga | gaagacgggc | aagcgctcca | ccagcgccgc | cgttttggag | 1560 |
| gccttgccgg | aggctcatcc | catcgtggac | cgcctccttc | agtaccggga | gctttccaag | 1620 |
| ctcaagggaa | cctacatcga | tcccttgctt | gccctggctc | acccaagac | gaaccgcctc | 1680 |
| cacacccgtt | tcaaccagac | ggccaccgcc | acggggaggc | ttagcagctc | ggatccta | 1740 |
| ctgcaaaata | tccccgtgcg | cacccctttg | ggccagcgga | tccgcccggc | cttcgtggcc | 1800 |
| gaggaggggt | ggaggctggt | ggttttgga | tacagccaga | ttgagctcag | ggtcctggcg | 1860 |
| cacctttccg | gggacgagaa | cctaaccggg | gtcttccagg | agggccagga | catccacacc | 1920 |
| cagacggcca | gctggatggt | cggcgtgccc | ccagaggccg | tggattccct | gatgcgccgg | 1980 |
| gcggccaaga | ccatcaactt | cggcgtcctc | tacggcatgt | ccgcccaccg | gctttcgggg | 2040 |
| gagctggcca | tcccctacga | ggaggcggtg | gccttcatcg | agcggtat | ccagagctac | 2100 |
| cccaaggtgc | gggcctggat | tgagaaaacc | ctggcggaag | gacgggaacg | gggctatgtg | 2160 |
| gaaaccctct | ttggccgccc | gcgctacgtg | cccgaacttg | cttcccgggt | gaagagcatc | 2220 |
| cgggaggcag | cggagcgcat | ggccttcaac | atgccggtcc | aggggaccgc | cgcggatttg | 2280 |

atgaaactgg ccatggtgaa gctctttccc aggtttcagg agctgggggc caggatgctt 2340
 ttgcaggtgc acgacgaact ggtcctcgag gctcccaagg agcaagcgga ggaagtcgcc 2400
 caggaggcca agcggaccat ggaggaggtg tggccccctga aggtgccctt ggaggtggaa 2460
 gtgggcatcg gggaggactg gctttccgcc aaggcctag 2499

<210> 254

<211> 832

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 254

Met Glu Phe Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val
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Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu
 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys
 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val
 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr
 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala
 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
 100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala
 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu
 130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr

| | | | | | | |
|-----------------------------------------------------------------|-------------------------------------------------|-----|-----|-----|-----|-----|
| 145 | | 150 | | 155 | | 160 |
| Leu Ile Thr Pro | Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser | | | | | |
| | 165 | | | 170 | | 175 |
| Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile | | | | | | |
| | 180 | | 185 | | | 190 |
| Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg | | | | | | |
| | 195 | | 200 | | 205 | |
| Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys | | | | | | |
| | 210 | | 215 | | 220 | |
| Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys | | | | | | |
| | 225 | | 230 | | 235 | 240 |
| Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Leu Gln Val | | | | | | |
| | 245 | | 250 | | | 255 |
| Asp Phe Ala Arg Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe | | | | | | |
| | 260 | | 265 | | | 270 |
| Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu | | | | | | |
| | 275 | | 280 | | 285 | |
| Glu Ser Pro Val Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly | | | | | | |
| | 290 | | 295 | | 300 | |
| Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu | | | | | | |
| | 305 | | 310 | | 315 | 320 |
| Leu Asn Ala Leu Ala Ala Ala Trp Glu Gly Arg Val Tyr Arg Ala Glu | | | | | | |
| | 325 | | 330 | | | 335 |
| Asp Pro Leu Glu Ala Leu Arg Gly Leu Gly Glu Val Arg Gly Leu Leu | | | | | | |
| | 340 | | 345 | | | 350 |
| Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly Ile Ala Leu Ala | | | | | | |
| | 355 | | 360 | | 365 | |
| Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn | | | | | | |
| | 370 | | 375 | | 380 | |
| Thr Ala Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu | | | | | | |
| | 385 | | 390 | | 395 | 400 |

Glu Ala Gly Glu Arg Ala Leu Leu Ser Glu Arg Leu Tyr Ala Ala Leu
 405 410 415
 Leu Glu Arg Leu Lys Gly Glu Glu Arg Leu Leu Trp Leu Tyr Glu Glu
 420 425 430
 Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly
 435 440 445
 Val Arg Leu Asp Val Ala Tyr Leu Lys Ala Leu Ser Leu Glu Val Glu
 450 455 460
 Ala Glu Ile Arg Arg Phe Glu Glu Glu Val His Arg Leu Ala Gly His
 465 470 475 480
 Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Ile Phe Asp
 485 490 495
 Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg
 500 505 510
 Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile
 515 520 525
 Val Asp Arg Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys Gly Thr
 530 535 540
 Tyr Ile Asp Pro Leu Pro Ala Leu Val His Pro Lys Thr Asn Arg Leu
 545 550 555 560
 His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser
 565 570 575
 Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln
 580 585 590
 Arg Ile Arg Arg Ala Phe Val Ala Glu Glu Gly Trp Arg Leu Val Val
 595 600 605
 Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly
 610 615 620
 Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Gln Asp Ile His Thr
 625 630 635 640
 Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Ser
 645 650 655

Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly
660 665 670

Met Ser Ala His Arg Leu Ser Gly Glu Leu Ala Ile Pro Tyr Glu Glu
675 680 685

Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Tyr Pro Lys Val Arg
690 695 700

Ala Trp Ile Glu Lys Thr Leu Ala Glu Gly Arg Glu Arg Gly Tyr Val
705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Ala Ser Arg
725 730 735

Val Lys Ser Ile Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu
755 760 765

Phe Pro Arg Leu Gln Glu Leu Gly Ala Arg Met Leu Leu Gln Val His
770 775 780

Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Gln Ala Glu Glu Val Ala
785 790 795 800

Gln Glu Ala Lys Arg Thr Met Glu Glu Val Trp Pro Leu Lys Val Pro
805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Ala
820 825 830

<210> 255

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 255

cgatctcctc ggccacctcc

<210> 256
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 256
 ggcggtgccc tggacgggca 20

<210> 257
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>

<223> Synthetic

<400> 257
 ccagctcggt gtggacctga 20

<210> 258
 <211> 2505
 <212> DNA
 <213> Thermus aquaticus

<400> 258
 atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60
 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggggag 120
 ccggtgcagg cggctctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180
 gacgcggtga tcgtggtctt tgacgccaaag gccccctcct tccgccacga ggcctacggg 240
 ggggtacaagg cgggcccggc cccacgccg gaggactttc cccggcaact cgccctcatc 300
 aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac 360
 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcctcctc 420
 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480

| | | | | | | |
|------------|------------|------------|------------|-------------|-------------|------|
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggt | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggagggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttcttg | ccctggccgc | cgccaggggg | ggccgggtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgagg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | ccaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gtgggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | acatggaggc | cacgggggtg | cgctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgccgcg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcga | tcggcaagac | ggagaagacc | ggcaagcgct | ccaccagcgc | cgccgtcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcggt | gagaagatcc | tgagtagccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tccaccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccc | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |
| gcccacctct | ccggcgacga | gaacctgatc | cgggtcttcc | aggagggggc | ggacatccac | 1920 |
| acggagaccg | ccagctggat | gttcggcgtc | ccccgggagg | ccgtggaccc | cctgatgcgc | 1980 |
| cgggcggcca | agaccatcaa | cttcggggtc | ctctacggca | tgtcggccca | ccgcctctcc | 2040 |
| caggagctag | ccatccctta | cgaggaggcc | caggccttca | ttgagcgcta | ctttcagagc | 2100 |
| ttccccaagg | tgcgggcctg | gattgagaag | accctggagg | agggcaggag | gcgggggtac | 2160 |
| gtggagaccc | tcttcggccg | ccgccgctac | gtgccagacc | tagaggcccg | ggtgaagagc | 2220 |
| gtgcgggagg | cggccgagcg | catggccttc | aacatgcccc | tccagggcac | cgccgccgac | 2280 |
| ctcatgaagc | tggctatggg | gaagctcttc | cccaggctgg | aggaaatggg | ggccaggatg | 2340 |

ctccttcagg tccacaacga gctggtcctc gagggcccaa aagagagggc ggaggccgtg 2400
 gcccggtgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460
 gaggtgggga taggggagga ctggctctcc gccaaggagt gatag 2505

<210> 259

<211> 833

<212> PRT

<213> Thermus aquaticus

<400> 259

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Ser | Gly | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val | Leu | 1 | 5 | 10 | 15 |
| Leu | Val | Asp | Gly | His | His | Leu | Ala | Tyr | Arg | Thr | Phe | His | Ala | Leu | Lys | 20 | 25 | 30 | |
| Gly | Leu | Thr | Thr | Ser | Arg | Gly | Glu | Pro | Val | Gln | Ala | Val | Tyr | Gly | Phe | 35 | 40 | 45 | |
| Ala | Lys | Ser | Leu | Leu | Lys | Ala | Leu | Lys | Glu | Asp | Gly | Asp | Ala | Val | Ile | 50 | 55 | 60 | |
| Val | Val | Phe | Asp | Ala | Lys | Ala | Pro | Ser | Phe | Arg | His | Glu | Ala | Tyr | Gly | 65 | 70 | 75 | 80 |
| Gly | Tyr | Lys | Ala | Gly | Arg | Ala | Pro | Thr | Pro | Glu | Asp | Phe | Pro | Arg | Gln | 85 | 90 | 95 | |
| Leu | Ala | Leu | Ile | Lys | Glu | Leu | Val | Asp | Leu | Leu | Gly | Leu | Ala | Arg | Leu | 100 | 105 | 110 | |
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | Lys | 115 | 120 | 125 | |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Lys | 130 | 135 | 140 | |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | Glu | 145 | 150 | 155 | 160 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Arg | 165 | 170 | 175 | |

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu

| 675 | | | | | 680 | | | | | 685 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val |
| 690 | | | | | | 695 | | | | | 700 | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| | 770 | | | | | 775 | | | | | 780 | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val |
| | | | 805 | | | | | | 810 | | | | | 815 | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys |
| | | 820 | | | | | | 825 | | | | | 830 | | |

Glu

<210> 260

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 260

caggaggagc tcgttggtgga cctgga

26

<210> 261

<211> 836

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 261

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly
 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile
 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

| | | | |
|---------------------------------------------------------------------|---------------------|-----|-----|
| 690 | 695 | 700 | |
| Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys | | | |
| 705 | 710 | 715 | 720 |
| Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp | | | |
| | 725 | 730 | 735 |
| Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala | | | |
| | 740 | 745 | 750 |
| Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala | | | |
| | 755 | 760 | 765 |
| Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu | | | |
| | 770 | 775 | 780 |
| Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala | | | |
| 785 | 790 | 795 | 800 |
| Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro | | | |
| | 805 | 810 | 815 |
| Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu | | | |
| | 820 | 825 | 830 |
| Ser Ala Lys Gly | | | |
| | 835 | | |
| <210> | 262 | | |
| <211> | 2511 | | |
| <212> | DNA | | |
| <213> | Artificial Sequence | | |
| <220> | | | |
| <223> | Synthetic | | |
| <400> | 262 | | |
| atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac | | | 60 |
| ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc | | | 120 |
| gaaccgggtgc aggcgggtcta cggtctcgcc aagagcctcc tcaaggccct gaaggaggac | | | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcg ccacgaggcc | | | 240 |

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|------|
| tacgaggcct | acaaggcggg | gagggccccg | acccccgagg | acttcccccg | gcagctcgcc | 300 |
| ctcatcaagg | agctggtgga | cctcctgggg | tttaccgcgc | tcgaggtccc | cggttacgag | 360 |
| gcggacgacg | ttctcgccac | cctggccaag | aaggcggaaa | aggaggggta | cgaggtgcgc | 420 |
| atcctcaccg | ccgaccgcga | cctctaccaa | ctcgtctccg | accgcgtcgc | cgctctccac | 480 |
| cccagagggc | acctcatcac | cccggagtgg | ctttgggaga | agtacggcct | caggccggag | 540 |
| cagtgggtgg | acttccgcgc | cctcgtgggg | gacccctccg | acaacctccc | cggggtcaag | 600 |
| ggcatcgggg | agaagaccgc | cctcaagctc | ctcaaggagt | ggggaagcct | ggaaaacctc | 660 |
| ctcaagaacc | tggaccgggt | aaagccagaa | aacgtccggg | agaagatcaa | ggccccactg | 720 |
| gaagacctca | ggctctcctt | ggagctctcc | cggtgcgcga | ccgacctccc | cctggaggtg | 780 |
| gacctcgccc | aggggcggga | gcccgaccgg | gaggggctta | gggccttcct | ggagaggctg | 840 |
| gagttcggca | gcctcctcca | cgagttcggc | ctcctggagg | cccccgcccc | cctggaggag | 900 |
| gccccctggc | ccccgccgga | aggggccttc | gtgggcttcg | tcctctcccc | ccccgagccc | 960 |
| atgtgggcgg | agcttaaagc | cctggccgcc | tgcagggacg | gccgggtgca | ccgggcagca | 1020 |
| gaccccttgg | cggggctaaa | ggacctcaag | gaggtccggg | gcctcctcgc | caaggacctc | 1080 |
| gccgtcttgg | cctcgaggga | ggggctagac | ctcgtgcccc | gggacgaccc | catgctcctc | 1140 |
| gcctacctcc | tggacccctc | caacaccacc | cccagagggg | tggcgcggcg | ctacgggggg | 1200 |
| gagtggacgg | aggacgccgc | ccaccggggc | ctcctctcgg | agaggctcca | tcggaacctc | 1260 |
| cttaagcgcc | tcgaggggga | ggagaagctc | ctttggctct | accacgaggt | ggaaaagccc | 1320 |
| ctctccccgg | tcctggccca | catggaggcc | accgggggtac | ggcgggacgt | ggcctacctt | 1380 |
| caggcccttt | ccctggagct | tgcggaggag | atccgccgcc | tcgaggagga | ggtcttccgc | 1440 |
| ttggcggggc | accccttcaa | cctcaactcc | cgggaccagc | tggaaagggt | gctctttgac | 1500 |
| gagcttaggc | ttccgcctt | ggggaagacg | caaaagacag | gcaagcgctc | caccagcgcc | 1560 |
| gcggtgctgg | aggccctacg | ggaggcccac | cccatcgtgg | agaagatcct | ccagcaccgg | 1620 |
| gagctcacca | agctcaagaa | cacctacgtg | gacccccctc | caagcctcgt | ccacccgagg | 1680 |
| acgggccggc | tccacacccg | cttcaaccag | acggccacgg | ccacggggag | gcttagtagc | 1740 |
| tccgacccca | acctgcagaa | catccccgtc | cgcacccccct | tgggccagag | gatccgccgg | 1800 |
| gccttcgtgg | ccgaggcggg | ttgggcgttg | gtggcccttg | actatagcca | gatagagctc | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgctc | ccccggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacggtgaac | ttcggcgctc | tctacggcat | gtccgcccac | 2040 |
| aggctctccc | aggagcttgc | catcccctac | gaggaggcgg | tggcctttat | agagcgctac | 2100 |

| | |
|--------------------------------------------------------------------|------|
| ttccaaagct tccccaaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag | 2160 |
| cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgaacct caacgcccgg | 2220 |
| gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc | 2280 |
| gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg | 2340 |
| gcccgcacgc tcctccaggt ccacaacgag ctctctctgg aggcccccca agcgcggggc | 2400 |
| gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc | 2460 |
| ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtta g | 2511 |

<210> 263

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 263

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| tctagaggat ctatcagtg tgggtggtgg ggtgctcctt ggcggagagc | 50 |
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<210> 264

<211> 58

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 264

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<210> 265

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 265

| | | | | | | |
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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccggggggag | 120 |
| ccggtgcagg | cggtctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggccgggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgctcagagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcctcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcatc | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caaggtgcgc | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaaag | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtggggc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggg | ggccgggtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgcgc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | ccaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gtggggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | acatggaggc | cacgggggtg | cgcttgacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcc | tcggcaagac | ggagaagacc | ggcaagcgct | ccaccagcgc | cgcgctcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcgtg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgacctcttg | ccggacctca | tccaccccag | gacgggccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |

gcccaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860
 gcccacctct ccggcgacga gaacctgac cggggtcttcc aggaggggag ggacatccac 1920
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<210> 266

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 266

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Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln

| 85 | | | | | 90 | | | | | 95 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Leu | Ile | Lys | Glu | Leu | Val | Asp | Leu | Leu | Gly | Leu | Ala | Arg | Leu |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Glu | Val | Pro | Gly | Tyr | Glu | Ala | Asp | Asp | Val | Leu | Ala | Ser | Leu | Ala | Lys |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Lys | Ala | Glu | Lys | Glu | Gly | Tyr | Glu | Val | Arg | Ile | Leu | Thr | Ala | Asp | Lys |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asp | Leu | Tyr | Gln | Leu | Leu | Ser | Asp | Arg | Ile | His | Val | Leu | His | Pro | Glu |
| 145 | | | | | | 150 | | | | | 155 | | | | 160 |
| Gly | Tyr | Leu | Ile | Thr | Pro | Ala | Trp | Leu | Trp | Glu | Lys | Tyr | Gly | Leu | Arg |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Pro | Asp | Gln | Trp | Ala | Asp | Tyr | Arg | Ala | Leu | Thr | Gly | Asp | Glu | Ser | Asp |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asn | Leu | Pro | Gly | Val | Lys | Gly | Ile | Gly | Glu | Lys | Thr | Ala | Arg | Lys | Leu |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Leu | Glu | Glu | Trp | Gly | Ser | Leu | Glu | Ala | Leu | Leu | Lys | Asn | Leu | Asp | Arg |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Leu | Lys | Pro | Ala | Ile | Arg | Glu | Lys | Ile | Leu | Ala | His | Met | Asp | Asp | Leu |
| 225 | | | | | | 230 | | | | | 235 | | | | 240 |
| Lys | Leu | Ser | Trp | Asp | Leu | Ala | Lys | Val | Arg | Thr | Asp | Leu | Pro | Leu | Glu |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Val | Asp | Phe | Ala | Lys | Arg | Arg | Glu | Pro | Asp | Arg | Glu | Arg | Leu | Arg | Ala |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Phe | Leu | Glu | Arg | Leu | Glu | Phe | Gly | Ser | Leu | Leu | His | Glu | Phe | Gly | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Glu | Ser | Pro | Lys | Ala | Leu | Glu | Glu | Ala | Pro | Trp | Pro | Pro | Pro | Glu |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Gly | Ala | Phe | Val | Gly | Phe | Val | Leu | Ser | Arg | Lys | Glu | Pro | Met | Trp | Ala |
| 305 | | | | | | 310 | | | | | 315 | | | | 320 |
| Asp | Leu | Leu | Ala | Leu | Ala | Ala | Ala | Arg | Gly | Gly | Arg | Val | His | Arg | Ala |
| | | | | 325 | | | | | 330 | | | | | 335 | |

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val
595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser
610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His
625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu
675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val
690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala
725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val
770 775 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val
785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val
805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys
820 825 830

Glu His His His His His His

<210> 267

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 267

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gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac      180
gggtacaagg ccgtcttcgt ggtctttgac gccaaaggccc cctccttcct ccacgaggcc      240
tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc      300
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atgtgggcgg agcttaaagc cctggccgcc tgcaggagcg gccgggtgca ccgggcagca     1020
gacccttggt cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc     1080
gccgtcttgg cctcgaggga ggggctagac ctcggtcccc gggacgaccc catgctcctc     1140
gcctacctcc tggacctcct caacaccacc cccgaggggg tggcgcgggc ctacgggggg     1200
gagtggacgg aggacgccgc ccaccgggcc ctctctcgg agaggctcca tcggaacctc     1260
cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc     1320

```

| | | | | | | | |
|------------|------------|-------------|-------------|------------|------------|------------|------|
| ctctcccg | ggg | tcctggcca | catggaggcc | accggggtag | ggcgggacgt | ggcctacctt | 1380 |
| caggcccttt | ccttggagct | tgcggaggag | atccgccgcc | tcgaggagga | ggtcttccgc | | 1440 |
| ttggcggggc | acccttcaa | cctcaactcc | cgggaccagc | tggaaaggg | gctctttgac | | 1500 |
| gagcttaggc | ttcccgctt | ggggaagacg | caaaagacag | gcaagcgctc | caccagcgcc | | 1560 |
| gcggtgctgg | aggccctacg | ggaggccccc | cccatcgtag | agaagatcct | ccagcaccgg | | 1620 |
| gagctcacca | agctcaagaa | cacctacgtg | gacccccctc | caagcctcgt | ccacccgagg | | 1680 |
| acgggcccgc | tccacacccg | cttcaaccag | acggccacgg | ccacggggag | gcttagtagc | | 1740 |
| tccgacccca | acctgcagaa | catccccgtc | cgcacccccct | tgggccagag | gatccgccgg | | 1800 |
| gccttcgtgg | ccgaggcggg | ttgggcgttg | gtggccctgg | actatagcca | gatagagctc | | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgctc | ccccggaggc | cgtggacccc | | 1980 |
| ctgatgcgcc | gggcggccaa | gacgggtgaac | ttcggcgctc | tctacggcat | gtccgcccac | | 2040 |
| aggctctccc | aggagcttgc | catcccctac | gaggaggcgg | tggcctttat | agagcgctac | | 2100 |
| ttccaaagct | ttcccaaggt | gcgggcctgg | atagaaaaga | ccctggagga | ggggaggaag | | 2160 |
| cggggctacg | tggaaaccct | cttcggaaga | aggcgctacg | tgcccgacct | caacgcccgg | | 2220 |
| gtgaagagcg | tcagggaggg | cgcggagcgc | atggccttca | acatgcccgt | ccagggcacc | | 2280 |
| gccgccgacc | tcataagct | cgcctatggtg | aagctcttcc | ccgcctccg | ggagatgggg | | 2340 |
| gcccgcacgc | tcctccaggt | ccacaacgag | ctcctcctgg | aggcccccca | agcgcgggcc | | 2400 |
| gaggagggtg | cggctttggc | caaggaggcc | atggagaagg | cctatcccct | cgccgtgccc | | 2460 |
| ctggagggtg | aggtggggat | gggggaggac | tggctttccg | ccaagggtca | ccaccaccac | | 2520 |
| caccac | | | | | | | 2526 |

<210> 268

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 268

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Asn | Ser | Glu | Ala | Met | Leu | Pro | Leu | Phe | Glu | Pro | Lys | Gly | Arg | Val |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30
 Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45
 Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60
 Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80
 Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95
 Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110
 Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125
 Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140
 Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160
 Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175
 Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190
 Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205
 Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220
 Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240
 Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255
 Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285
 Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300
 Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320
 Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val
 325 330 335
 His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350
 Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365
 Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380
 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400
 Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415
 His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430
 Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445
 Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460
 Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480
 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495
 Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510
 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu

| | | | | |
|-----------------------------------------------------------------|-----|-----|-----|-----|
| 515 | | 520 | | 525 |
| Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys | 530 | 535 | 540 | |
| Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg | 545 | 550 | 555 | 560 |
| Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly | 565 | 570 | | 575 |
| Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr | 580 | 585 | | 590 |
| Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp | 595 | 600 | | 605 |
| Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala | 610 | 615 | | 620 |
| His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys | 625 | 630 | 635 | 640 |
| Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu | 645 | | 650 | 655 |
| Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly | 660 | 665 | | 670 |
| Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile | 675 | 680 | | 685 |
| Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe | 690 | 695 | 700 | |
| Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys | 705 | 710 | 715 | 720 |
| Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp | 725 | 730 | | 735 |
| Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala | 740 | 745 | | 750 |
| Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala | 755 | 760 | | 765 |

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu
770 775 780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala
785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro
805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu
820 825 830

Ser Ala Lys Gly His His His His His His
835 840

<210> 269

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 269
gccgccaggg gcggccgcgt ccaccggggc

30

<210> 270

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 270
gcctgcaggg gcggccgcgt gcaccggggc a

31

<210> 271

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 271

ctcctggacc cttcgaacac cacccc

26

<210> 272

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 272

gtcctggccc atatggaggc cac

23

<210> 273

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 273

| | |
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| atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac | 60 |
| ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc | 120 |
| gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac | 180 |
| gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttcg ccacgaggcc | 240 |
| tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc | 300 |
| ctcatcaagg agctggtgga cctcctgggg tttaccgcc tcgagggtccc cggctacgag | 360 |
| gcggacgacg ttctcgccac cctggccaag aaggcgaaa aggaggggta cgaggtgcgc | 420 |
| atcctcaccg ccgaccgca cctctaccaa ctgctctccg accgcgtcgc cgtcctccac | 480 |
| cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag | 540 |

| | | | | | | |
|------------|------------|------------|-------------|------------|-------------|------|
| cagtgggtgg | acttccgcgc | cctcgtgggg | gacccctccg | acaacctccc | cggggtcaag | 600 |
| ggcatcgggg | agaagaccgc | cctcaagctc | ctcaaggagt | ggggaagcct | ggaaaacctc | 660 |
| ctcaagaacc | tggaccgggt | aaagccagaa | aacgtccggg | agaagatcaa | ggcccacctg | 720 |
| gaagacctca | ggctctcctt | ggagctctcc | cggtgcgca | ccgacctccc | cctggagggtg | 780 |
| gacctcgccc | aggggcggga | gcccgaccgg | gaggggctta | gggccttcct | ggagagggtg | 840 |
| gagttcggca | gcctcctcca | cgagttcggc | ctcctggagg | ccccgcgcc | cctggaggag | 900 |
| gccccctggc | ccccgcggga | aggggccttc | gtgggcttcg | tcctctcccg | ccccgagccc | 960 |
| atgtgggcgg | agcttaaagc | cctggccgcc | tgcaggggcg | gccgcgtgca | ccgggcagca | 1020 |
| gaccccttgg | cggggctaaa | ggacctcaag | gaggtccggg | gcctcctcgc | caaggacctc | 1080 |
| gccgtcttgg | cctcgaggga | ggggctagac | ctcgtgcccc | gggacgaccc | catgctcctc | 1140 |
| gcctacctcc | tggacccttc | gaacaccacc | cccgaggggg | tggcgcggcg | ctacgggggg | 1200 |
| gagtggacgg | aggacgccgc | ccaccgggcc | ctcctctcgg | agaggctcca | tcggaacctc | 1260 |
| cttaagcgcc | tcgaggggga | ggagaagctc | ctttggctct | accacgaggt | ggaaaagccc | 1320 |
| ctctcccggg | tcctggccca | tatggaggcc | accgggggtac | ggcgggacgt | ggcctacctt | 1380 |
| caggcccttt | ccctggagct | tgcggaggag | atccgccgcc | tcgaggagga | ggtcttccgc | 1440 |
| ttggcgggcc | accccttcaa | cctcaactcc | cgggaccagc | tggaaagggt | gctctttgac | 1500 |
| gagcttaggc | ttccgcctt | ggggaagacg | caaaagacag | gcaagcgctc | caccagcgcc | 1560 |
| gcggtgctgg | aggccctacg | ggaggcccac | cccatcgtgg | agaagatcct | ccagcaccgg | 1620 |
| gagctcacca | agctcaagaa | cacctacgtg | gacccctcc | caagcctcgt | ccacccgagg | 1680 |
| acgggcggcc | tccacaccgc | cttcaaccag | acggccacgg | ccacggggag | gcttagtagc | 1740 |
| tccgacccca | acctgcagaa | catccccgtc | cgcacccccct | tgggccagag | gatccgccgg | 1800 |
| gccttcgtgg | ccgaggcggg | ttgggcgttg | gtggccctgg | actatagcca | gatagagctc | 1860 |
| cgcgtcctcg | cccacctctc | cggggacgaa | aacctgatca | gggtcttcca | ggaggggaag | 1920 |
| gacatccaca | cccagaccgc | aagctggatg | ttcggcgtcc | ccccggaggc | cgtggacccc | 1980 |
| ctgatgcgcc | gggcggccaa | gacggtgaac | ttcggcgtcc | tctacggcat | gtccgcccac | 2040 |
| aggctctccc | aggagcttgc | catcccctac | gaggaggcgg | tggcctttat | agagcgctac | 2100 |
| ttccaaagct | tccccaaggt | gcgggccttg | atagaaaaga | ccctggagga | ggggaggaag | 2160 |
| cggggctacg | tggaaaccct | cttcggaaga | aggcgctacg | tgcccgacct | caacgcccgg | 2220 |
| gtgaagagcg | tcagggaggc | cgcggagcgc | atggccttca | acatgcccgt | ccagggcacc | 2280 |
| gccgccgacc | tcatgaagct | cgccatggtg | aagctcttcc | ccgcctcccg | ggagatgggg | 2340 |
| gcccgcacgc | tcctccaggt | ccacaacgag | ctcctcctgg | aggcccccca | agcgcgggcc | 2400 |

gaggaggtgg cggttttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460
 ctggaggtgg aggtggggat gggggaggac tggctttccg ccaaggggtca ccaccaccac 2520
 caccac 2526

<210> 274

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 274

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val
 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu
 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala
 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala
 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro
 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu
 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala
 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His
 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu
 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu
 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu
 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu
 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly
 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu
 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro
 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro
 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val
 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val
 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly
 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu
 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
 405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp
 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser
 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg
 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys
 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys
 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg
 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly
 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala
 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys
 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu
 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly

| | | |
|-----------------------------------------------------------------|-----|-----|
| 660 | 665 | 670 |
| Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile | | |
| 675 | 680 | 685 |
| Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe | | |
| 690 | 695 | 700 |
| Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys | | |
| 705 | 710 | 715 |
| Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp | | |
| | 725 | 730 |
| Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala | | |
| | 740 | 745 |
| Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala | | |
| | 755 | 760 |
| Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu | | |
| | 770 | 780 |
| Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala | | |
| 785 | 790 | 795 |
| Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro | | |
| | 805 | 810 |
| Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu | | |
| | 820 | 825 |
| Ser Ala Lys Gly His His His His His His | | |
| 835 | 840 | |

<210> 275

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 275

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| caccacctgg | cctaccgcac | cttccacgcc | ctgaagggcc | tcaccaccag | ccgggggggag | 120 |
| ccggtgcagg | cgttctacgg | cttcgccaag | agcctcctca | aggccctcaa | ggaggacggg | 180 |
| gacgcggtga | tcgtggtctt | tgacgccaag | gccccctcct | tccgccacga | ggcctacggg | 240 |
| gggtacaagg | cgggcccggc | ccccacgccg | gaggactttc | cccggcaact | cgccctcatc | 300 |
| aaggagctgg | tggacctcct | ggggctggcg | cgcctcgagg | tcccgggcta | cgaggcggac | 360 |
| gacgtcctgg | ccagcctggc | caagaaggcg | gaaaaggagg | gctacgaggt | ccgcatcctc | 420 |
| accgccgaca | aagaccttta | ccagctcctt | tccgaccgca | tccacgtcct | ccaccccgag | 480 |
| gggtacctca | tcaccccggc | ctggcttttg | gaaaagtacg | gcctgaggcc | cgaccagtgg | 540 |
| gccgactacc | gggccctgac | cggggacgag | tccgacaacc | ttcccggggg | caagggcac | 600 |
| ggggagaaga | cggcgaggaa | gcttctggag | gagtggggga | gcctggaagc | cctcctcaag | 660 |
| aacctggacc | ggctgaagcc | cgccatccgg | gagaagatcc | tggcccacat | ggacgatctg | 720 |
| aagctctcct | gggacctggc | caagggtgcg | accgacctgc | ccctggaggt | ggacttcgcc | 780 |
| aaaaggcggg | agcccgaccg | ggagaggctt | agggcctttc | tggagaggct | tgagtttggc | 840 |
| agcctcctcc | acgagttcgg | ccttctggaa | agccccaagg | ccctggagga | ggccccctgg | 900 |
| cccccgccgg | aaggggcctt | cgtgggcttt | gtgctttccc | gcaaggagcc | catgtgggcc | 960 |
| gatcttctgg | ccctggccgc | cgccaggggc | ggccgcgtcc | accgggcccc | cgagccttat | 1020 |
| aaagccctca | gggacctgaa | ggaggcgcgg | gggcttctcg | ccaaagacct | gagcgttctg | 1080 |
| gccctgaggg | aaggccttgg | cctcccgccc | ggcgacgacc | ccatgctcct | cgcctacctc | 1140 |
| ctggaccctt | cgaacaccac | ccccgagggg | gtggcccggc | gctacggcgg | ggagtggacg | 1200 |
| gaggaggcgg | gggagcgggc | cgccctttcc | gagaggctct | tcgccaacct | gtgggggagg | 1260 |
| cttgaggggg | aggagaggct | cctttggctt | taccgggagg | tggagaggcc | cctttccgct | 1320 |
| gtcctggccc | atatggaggc | cacgggggtg | cgcctggacg | tggcctatct | cagggccttg | 1380 |
| tccctggagg | tggccgagga | gatcgcccg | ctcgaggccg | aggtcttccg | cctggccggc | 1440 |
| caccccttca | acctcaactc | ccgggaccag | ctggaaaggg | tcctctttga | cgagctaggg | 1500 |
| cttcccgcca | tcggcaagac | ggagaagacc | ggcaagcgct | ccaccagcgc | cgcgctcctg | 1560 |
| gaggccctcc | gcgaggccca | ccccatcg | gagaagatcc | tgcagtaccg | ggagctcacc | 1620 |
| aagctgaaga | gcacctacat | tgaccccttg | ccggacctca | tcacccccag | gacgggcccgc | 1680 |
| ctccacaccc | gcttcaacca | gacggccacg | gccacgggca | ggctaagtag | ctccgatccc | 1740 |
| aacctccaga | acatccccgt | ccgcaccccg | cttgggcaga | ggatccgccc | ggccttcac | 1800 |
| gccgaggagg | ggtggctatt | ggtggccctg | gactatagcc | agatagagct | cagggtgctg | 1860 |

gccacacct cccggcgacga gaacctgatc cgggtcttcc aggaggggagc ggacatccac 1920
 acggagaccg ccagctggat gttcggcgtc ccccgaggag cctgatgcgc 1980
 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgcggccca ccgcctctcc 2040
 caggagctag ccattccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100
 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160
 gtggagacc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220
 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280
 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340
 ctccttcagg tccacaacga gctggctctc gagggcccaa aagagagggc ggaggccgtg 2400
 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggagggtg 2460
 gaggtgggga taggggagga ctggctctcc gccaggagc accaccacca ccaccac 2517

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<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 276

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile
 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly
 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln
 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu
 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg
 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu
 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg
 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu
 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu
 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu
 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu
 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala
 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala
 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu
 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu
 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser
 370 375 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr
 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr
 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val
 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro
 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser
 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg
 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly
 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

| 595 | | | | | 600 | | | | | 605 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Leu | Asp | Tyr | Ser | Gln | Ile | Glu | Leu | Arg | Val | Leu | Ala | His | Leu | Ser |
| 610 | | | | | | 615 | | | | | 620 | | | | |
| Gly | Asp | Glu | Asn | Leu | Ile | Arg | Val | Phe | Gln | Glu | Gly | Arg | Asp | Ile | His |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 |
| Thr | Glu | Thr | Ala | Ser | Trp | Met | Phe | Gly | Val | Pro | Arg | Glu | Ala | Val | Asp |
| | | | | 645 | | | | | 650 | | | | | 655 | |
| Pro | Leu | Met | Arg | Arg | Ala | Ala | Lys | Thr | Ile | Asn | Phe | Gly | Val | Leu | Tyr |
| | | | 660 | | | | | 665 | | | | | 670 | | |
| Gly | Met | Ser | Ala | His | Arg | Leu | Ser | Gln | Glu | Leu | Ala | Ile | Pro | Tyr | Glu |
| | | 675 | | | | | 680 | | | | | 685 | | | |
| Glu | Ala | Gln | Ala | Phe | Ile | Glu | Arg | Tyr | Phe | Gln | Ser | Phe | Pro | Lys | Val |
| 690 | | | | | | 695 | | | | | 700 | | | | |
| Arg | Ala | Trp | Ile | Glu | Lys | Thr | Leu | Glu | Glu | Gly | Arg | Arg | Arg | Gly | Tyr |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 |
| Val | Glu | Thr | Leu | Phe | Gly | Arg | Arg | Arg | Tyr | Val | Pro | Asp | Leu | Glu | Ala |
| | | | | 725 | | | | | 730 | | | | | 735 | |
| Arg | Val | Lys | Ser | Val | Arg | Glu | Ala | Ala | Glu | Arg | Met | Ala | Phe | Asn | Met |
| | | | 740 | | | | | 745 | | | | | 750 | | |
| Pro | Val | Gln | Gly | Thr | Ala | Ala | Asp | Leu | Met | Lys | Leu | Ala | Met | Val | Lys |
| | | 755 | | | | | 760 | | | | | 765 | | | |
| Leu | Phe | Pro | Arg | Leu | Glu | Glu | Met | Gly | Ala | Arg | Met | Leu | Leu | Gln | Val |
| 770 | | | | | | 775 | | | | | 780 | | | | |
| His | Asn | Glu | Leu | Val | Leu | Glu | Ala | Pro | Lys | Glu | Arg | Ala | Glu | Ala | Val |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 |
| Ala | Arg | Leu | Ala | Lys | Glu | Val | Met | Glu | Gly | Val | Tyr | Pro | Leu | Ala | Val |
| | | | | 805 | | | | | 810 | | | | | 815 | |
| Pro | Leu | Glu | Val | Glu | Val | Gly | Ile | Gly | Glu | Asp | Trp | Leu | Ser | Ala | Lys |
| | | | 820 | | | | | 825 | | | | | 830 | | |
| Glu | His | His | His | His | His | His | | | | | | | | | |
| | | | 835 | | | | | | | | | | | | |

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27

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<211> 36
<212> DNA
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36

<210> 279
<211> 36
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<213> Artificial Sequence

<220>
<223> Synthetic
<400> 279
ctcttcgcca acctgcttaa gaggcttgag ggggag

36

<210> 280
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
 <223> Synthetic
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 agggccccttt cccgggtcct ggcccat 27

 <210> 281
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 <212> DNA
 <213> Artificial Sequence

 <220>
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<211> 27

<212> DNA

<213> Artificial Sequence

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<223> Synthetic

<400> 284

gccgaggaga tccgccgcct cgaggcc

27

<210> 285

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 285

gcccgcctcg aggaggaggt cttccgc

27

<210> 286

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 286

tttgacgagc taaggcttcc cgccatc

27

<210> 287

<211> 27

<212> DNA

<213> Artificial Sequence

<220>
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 <400> 287
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 <210> 288
 <211> 27
 <212> DNA
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 <220>
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 aagatcctgc agcaccggga gctcacc 27

 <210> 289
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 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 289
 accaagctga agaacaccta cattgac 27

 <210> 290
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 <212> DNA
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 <223> Synthetic
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 aagagcacct acgtggaccc cttgccg 27

<210> 291
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 <220>
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 attgacccct tgccgagcct cgtccacccc aggacgggc 39

 <210> 292
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 <212> DNA
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 <220>
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 <400> 292
 ttcgccaacc tgcttgggag gcttgagggg gag 33

 <210> 293
 <211> 33
 <212> DNA
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 <220>
 <223> Synthetic
 <400> 293
 ctcttcgcca acctgtggaa gaggcttgag ggg 33

 <210> 294
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 <212> DNA
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<220>
 <223> Synthetic
 <400> 294
 gcttgcggtc tgggtggcga tgccttccc ctc 33

<210> 295
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
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 <400> 295
 catgttgaag gccatggcct ccgcggcctc cct 33

<210> 296
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 296
 caggaggagc tcgttggcga cctggaggag 30

<210> 297
 <211> 45
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 297
 ggagcgcttg cctgtttctt tcgttttctt caaggcggga ggcct 45

<210> 298
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 298
 gaggaccagc tcgttggcga cctgaaggag cat 33

 <210> 299
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 299
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 <210> 300
 <211> 33
 <212> DNA
 <213> Artificial Sequence

 <220>
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 <400> 300
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 <212> DNA
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<220>
 <223> Synthetic
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 gggcttcccg ccatcaagaa gacggagaag acc 33

 <210> 302
 <211> 39
 <212> DNA
 <213> Artificial Sequence

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 <400> 302
 ctagggcttc ccgccatcaa gaagacgcaa aagaccggc 39

 <210> 303
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 303
 ccgggggaaag tcctcctccg tctcgggcccg gcccgctt 39

 <210> 304
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 304
 cgggacctcg aggcgcgtga accccaggag gtccac 36

<210> 305
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 305
ctcctccacg agttcggc

18

<210> 306
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
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accggtcttc ttcgctcttct tcaacttggg aagcctgagc tcgtcaaa

48

<210> 307
<211> 33
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic
<400> 307
aagacgaaga agaccggtaa gcgctccacc agc

33

<210> 308
<211> 52
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 308

gtcgactcta gatcagtggt ggtggtggtg gtgcttggcc gcccggcgca tc 52

<210> 309

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> modified_base

<222> (19)..(42)

<223> The bases in these positions within tH primer are 91% of the base shown and 3% each of the other 3 nucleotides.

<400> 309

ggagcgctta ccggtctttt gcgtcttctt gatcttggga agccttagct cgtcaaagag 60

<210> 310

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 310

ctcctccacg agttcggc 18

<210> 311

<211> 60

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> modified_base

<222> (19)..(42)

<223> The bases at these positions within tH primer are 91% of the base shown and 3% each of the other 3 nucleotides.

<400> 311
caaaagaccg gtaagcgctc caccagcgcc gccgtcctgg aggccctccg cgaggccac 60

<210> 312

<211> 52

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 312
gtcgactcta gatcagtggt ggtggtggtg gtgcttggcc gcccggcgca tc 52

<210> 313

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 313
gtcggagggg tccccacga g 21

<210> 314

<211> 17

<212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 314
 tgtggaattg tgagcgg 17

 <210> 315
 <211> 75
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <220>
 <221> modified_base
 <222> (28)..(59)
 <223> The bases in these positions within tH primer are 91% of the base
 shown and 3% each of the other 3 nucleotides.

 <400> 315
 ctcgtggggg acccctccga caacctcccc ggggtcaagg gcatcgggga gaagaccgcc 60
 ctcaagcttc tcaag 75

 <210> 316
 <211> 23
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 316
 gtggcctcca tatgggccag gac 23

<210> 317
 <211> 36
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 317
 cgggacctcg aggcgcgtga accccaggag gtccac 36

 <210> 318
 <211> 39
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 318
 ccgggggaaag tcctcctccg tctcggcccg gcccgctt 39

 <210> 319
 <211> 24
 <212> DNA
 <213> Artificial Sequence

 <220>
 <223> Synthetic
 <400> 319
 gtcggactcg tcaccggtca gggc 24

 <210> 320
 <211> 75
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <220>
 <221> modified_base
 <222> (28)..(60)
 <223> The bases in these positions within tH primer are 91% of the base shown and 3% each of the other 3 nucleotides.

<400> 320
 ctgaccggtg acgagtccga caaccttccc ggggtcaagg gcatcgggga gaggacggcg 60
 aggaagcttc tggag 75

<210> 321
 <211> 33
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 321
 tagctcctgg gagagggcgt gggccgacat gcc 33

<210> 322
 <211> 34
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 322
 cttccagaac ctctttaaac ggctttccga gaag 34

<210> 323
 <211> 34

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 323

cttctcggaa agccgtttaa agaggttctg gaag

34

<210> 324

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 324

ccggtgggcc ggacgcagaa gacgggcaag c

31

<210> 325

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 325

gcttgcccgt cttctgcgtc cggcccaccg g

31

<210> 326

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 326

ctcctccaag tgcacaacga gctggtcctg g

31

<210> 327

<211> 31

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 327

ccaggaccag ctcgttgtgc acttggagga g

31

<210> 328

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 328

gccgccctcc tgaagcggct taaggg

26

<210> 329

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 329

cccttaagcc gcttcaggag ggcggc

26

<210> 330

<211> 28
 <212> DNA
 <213> Artificial Sequence

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 <400> 330
 atcggcaaga cgcagaagac gggcaagc 28

 <210> 331
 <211> 28
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 <400> 331
 gcttgcccgt cttctgcgtc ttgccgat 28

 <210> 332
 <211> 27
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 <220>
 <223> Synthetic
 <400> 332
 ttgcaggtgc acaacgaact ggtcctc 27

 <210> 333
 <211> 27
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 <223> Synthetic
 <400> 333
 gaggaccagt tcgttgca cctgcaa 27

<210> 334
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<220>
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 <400> 334
 cagaccatga attccacccc actttttgac ctggag 36

<210> 335
 <211> 36
 <212> DNA
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<220>
 <223> Synthetic
 <400> 335
 gtggacgcgg ccgcccgcgg ccgcccgcgg ggccag 36

<210> 336
 <211> 36
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Synthetic
 <400> 336
 cagaccatga attccctgcc cctctttgag cccaag 36

<210> 337

<211> 36

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 337

gtaaaccgcg ccgccccagg cggcggccaa ggcgtt

36

<210> 338

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 338

gaggtggagc ggccccctctc ccgggtcttg

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<210> 339

<211> 30

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<220>

<223> Synthetic

<400> 339

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30

<210> 340

<211> 2505

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 340

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| ggccaccacc | tggcctaccg | caccttctat | gccctgagcc | tcaccacctc | ccgggggggag | 120 |
| ccggtgcaga | tggcttacgg | cttcgcccgg | agcctcctca | aggccttgaa | ggaggacgga | 180 |
| caggcgggtg | tcgtggtctt | tgacgccaa | gccccctcct | tccgccacga | ggcctacgag | 240 |
| gcctacaagg | cgggcccggc | ccccaccccg | gaggacttcc | cccgccagct | cgccttggtc | 300 |
| aagcggctgg | tggaccttct | gggcctggtc | cgcctcgagg | ccccggggta | cgaggcggac | 360 |
| gacgtcctgg | gcaccctggc | caagaaggcc | gaaagggagg | ggatggagg | gcgcatacctc | 420 |
| acgggagacc | gggacttctt | ccagctcctc | tccgagaagg | tctcggtcct | cctgccggac | 480 |
| gggaccctgg | tcaccccaaa | ggacgtccag | gagaagtacg | gggtgcccc | ggagcgtgg | 540 |
| gtggacttcc | gcgccctcac | gggggaccgc | tcggacaaca | tccccggggt | ggcggggata | 600 |
| ggggagaaga | ccgcccttcg | actcctcgca | gagtggggga | gcgtggaaaa | cctcctgaag | 660 |
| aacctggacc | gggtaaagcc | ggactcgctc | cggcgcaaga | tagaggcgca | cctcgaggac | 720 |
| ctccacctct | ccttagacct | ggcccgcac | cgcaccgacc | tccccctgga | ggtggacttt | 780 |
| aaggccctgc | gccgcaggac | ccccgacctg | gagggcctga | gggccttttt | ggaggagctg | 840 |
| gagttcggaa | gcctcctcca | cgagttcggc | ctcctgggag | gggagaagcc | ccgggaggag | 900 |
| gccccctggc | ccccgcccga | aggggccttc | gtgggcttcc | tcctttcccg | caaggagccc | 960 |
| atgtgggagg | agcttctggc | cctggcgggc | gcctcggagg | gccgggtcca | ccgggcaaca | 1020 |
| agcccgggtg | aggccctggc | cgacctcaag | gagggccggg | ggttcctggc | caaggacctg | 1080 |
| gccgttttgg | ccctgcggga | gggggtggcc | ctggacccca | cggacgaccc | cctcctggtg | 1140 |
| gcctacctcc | tggacccggc | caacacccac | cccgaggggg | tggcccggcg | ctacgggggc | 1200 |
| gagttcacgg | aggacgcagc | ggagagggcc | ctcctctccg | agaggtctct | ccagaacctc | 1260 |
| tttaaaccgg | tttccgagaa | gctcctctgg | ctctaccagg | aggtggagcg | gccccctctc | 1320 |
| cgggtcttgg | cccacatgga | ggcccggggg | gtgaggctgg | acgtccccct | tctggaggcc | 1380 |
| ctctcctttg | agctggagaa | ggagatggag | cgcctggagg | gggaggtctt | ccgtttggcc | 1440 |
| ggccacccct | tcaacctcaa | ctcccgcgac | cagctggaaa | gggtcctctt | tgacgagctg | 1500 |
| ggcctcacc | cgggtgggccc | gacgcagaag | acgggcaagc | gctccaccgc | ccagggggcc | 1560 |
| ctggaggccc | tccggggggc | ccaccccatc | gtggagctca | tcctccagta | ccgggagctt | 1620 |
| tccaagctca | aaagcaccta | cctggacccc | ctgccccggc | tcgtccaccc | gcggacgggc | 1680 |

cggtccaca cccgcttcaa ccagacggcc acggccacgg gaaggctttc cagctccgac 1740
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 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val
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Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu